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American Aviation

Sixth Anniversary Issue

The Independent Voice of American Aeronautics

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JUNE 1, 1943

Free Enterprise in the Air

Fortnightly Review

OUT OF the maze of confusion and uncertainty over this country's position with regard to the operation of foreign airline routes by U. S. air carriers, two salient factors stand out clearly.

One is the question of government ownership, or participation, in U. S. international air transportation.

The other is the *pattern* of regulation and rights of transit which must be settled among all countries before any airlines of any countries can engage in global air transport.

These are basic, fundamental factors which transcend all other questions at this time. Long before it need be decided whether there shall be one single U. S. international airline company, or long before the decision is reached on which airlines shall fly which routes if there is to be more than one operator, these two primary questions must be settled.

The question of whether there shall be one, or many, U. S. foreign air carriers is greatly subordinated at this time to the much bigger question of whether there shall be government ownership of U. S. international air transportation. The principle of free enterprise must be established first, and it will soon be up to the government to declare itself once and for all on this highly important point.

In our opinion it makes no difference whether the government ownership is a minority of 35% or a bare minority of 49%, or a complete 100% ownership. The principle of government participation in this great new field of enterprise is against everything this nation has been fighting for. Regulation, yes. Constructive regulation can be bene-

(Turn to page 8)

The Champs

Stopping for a well-earned smoke are the two top airmen responsible for smashing the Luftwaffe and making possible the great African victory. On the left is Air Chief Marshal Sir Arthur Tedder, Commander in Chief of the Mediterranean Air Command, lighting a cigarette for Maj. Gen. Carl Spaatz, commander of the Northwest African Air Force.

Late Bulletins

Army May Take Schools

A strong movement to militarize the Army contract flying schools now appears to be in the making as a sequel to recent action of the AAF Technical Training Command in letting its civilian school contracts lapse June 30.

WTS Reservists to AAF

About 5,000 enlisted reservists in CAA's War Training Service are expected to be transferred to the Army Air Forces before June 30. By this action it is hoped to reduce the pool of excess reservists enlisted last year which still numbers 8,786 men to a manageable group which can be trained within a year. Men transferred will be with Flying Training Command.

Trend of The News

Invasion by Bombs: Trend toward an all-out air war against the Axis was given renewed emphasis last fortnight in Prime Minister Winston Churchill's speech before Congress. As U. S. and British air forces stepped up their hammering of the Continent, Churchill's remark that there is no harm in finding out if the Axis can be bombed to defeat led many Congressmen to speculate that a land invasion may not materialize until the "invasion by bombs" has completely paved the way.

Shift to Production: The shift from construction to production has definitely started. Pending plant construction will be scrutinized, and while some projects will be completed, others may be dropped, others left unfinished. Actual plane production will be emphasized.

A Bottleneck Broken: Return of six planes by the Army to the airlines is looked upon as the forerunner of more returns later in the year. The first three ships went to smaller airlines. The larger lines, also carrying record loads of priority passengers and express, must also have more equipment to increase their war work.

A Reminder: Government ownership of postwar U. S. international airlines is being talked in high government circles. When the time comes for a show-down, however, these circles will have Congress to reckon with, and the Congressional trend is toward private enterprise. Sen. Josiah Bailey (D., N. C.), chairman of the powerful Senate Commerce Committee, favoring government regulation but not ownership, dropped a gentle reminder last fortnight when he said: "Congress is going to have the decision to make. When the time comes, we will let advocates of government ownership speak, but we will also listen to others."

Cooperation: Trend toward cooperation between the Civil Aeronautics Board and the aviation industry on questions of postwar policy is looked upon as encouraging. The CAB publicly released 17 important questions on policy, the airlines answered them publicly. Officials are hopeful that the tendency will spread to other sources.

(Turn to page 6)

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ARMY E NAVY

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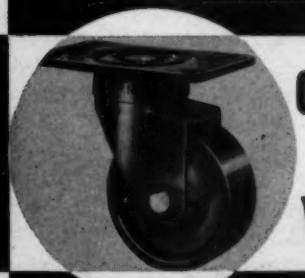

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American Aviation

Vol. 7, No. 1 **June 1, 1943**

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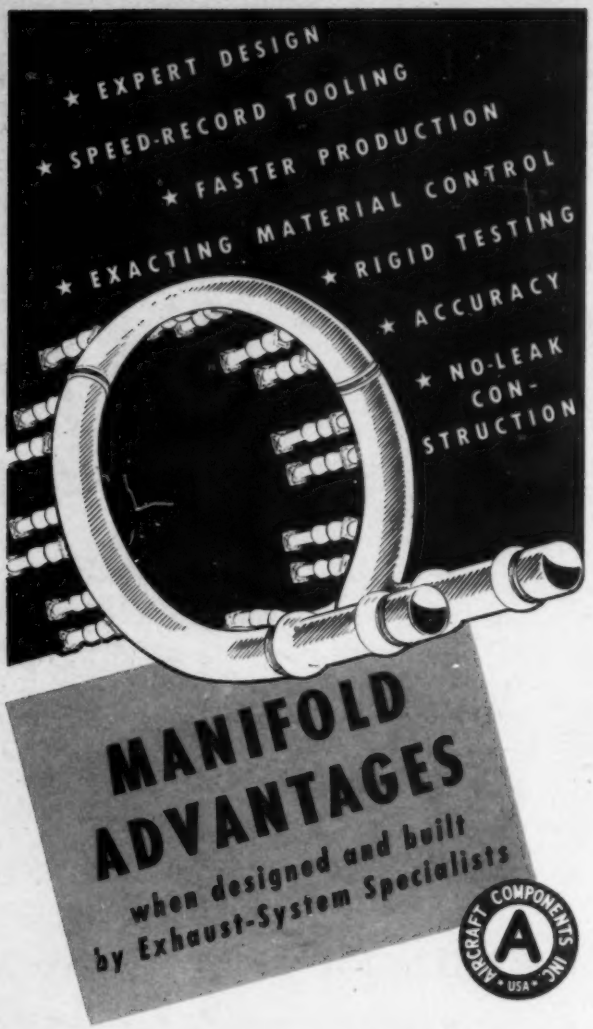

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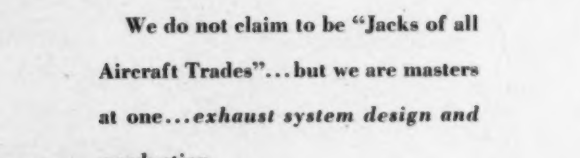

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Trends

(Continued from page 1)

Added Duties: Greater responsibilities are to be shouldered by the Civil Air Patrol, following its recent transfer from the Office of Civilian Defense to the Army. The move is considered a favorable one, and as a result of the transfer CAP membership has jumped. Equipment and spare parts difficulties which existed under OCD are not expected to continue under the Army.

Recognition: The four and one-half billion dollars for development of the Navy's air arm carried in the Naval appropriation bill for fiscal year 1944 is ample evidence of the ever-increasing recognition of airpower's value in modern war, even among old-line Navy officers. And the Axis should note that 33% of the entire appropriation requested for the War Dept. for 1944 is for the Air Forces. The AAF is to get $23,655,481,000.

Concession: President Roosevelt made no direct public explanation when he switched over recently to using poundage figures for the measurement of aircraft output, instead of unit figures. Airframe manufacturers, however, saw in the action a recognition of the need for realistic scheduling methods—on which hinges the ability to meet projected goals—and also wrote it down as a definite improvement in scheduling considerations.

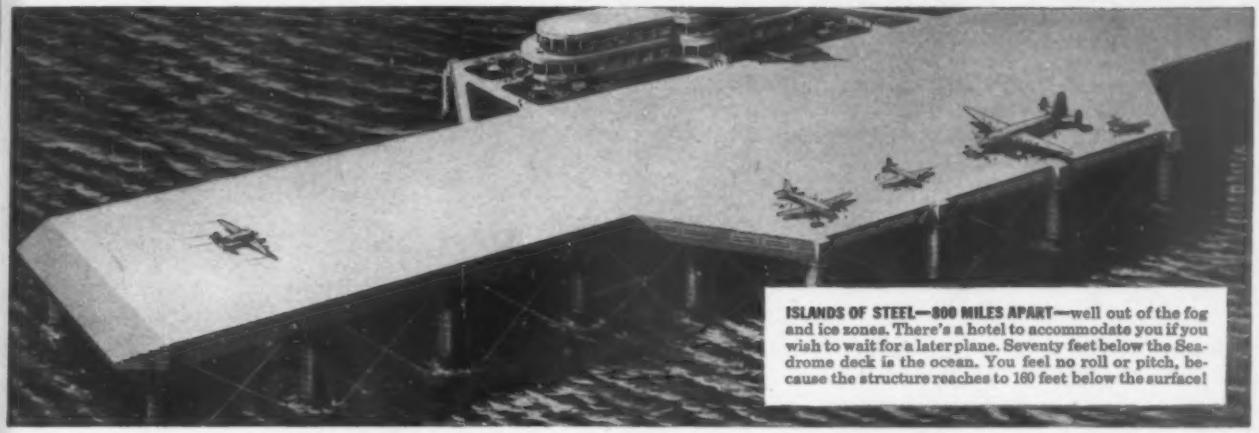
Realistic Scheduling: Accepted theme of the recent materials conference in Washington between manufacturers and WPB was that planning should begin with the available supply of materials and let a realistic manufacturing program be the controlling factor, rather than any numbered schedule. One of the chief industry recommendations was that parts and pieces be parceled out to exactly those points where the need is greatest.

Chief materials problems boiled down to aluminum extrusions and forgings. Aircraft Production Boards' Charles E. Wilson sought to avoid organization experimentation and the result was formation of a joint committee representing the aircraft industry, the aluminum industry, the aluminum and magnesium division of WPB, and the Aircraft Scheduling Unit. First meeting of this group was set for Dayton, O., on May 27, 28 and 29, and monthly meetings are to follow. Concensus was that a better flow of materials will be in progress by July 1. WPB immediately set out to find a competent aluminum man, who also knows aircraft, to be assigned as an aide to A. H. Bunker, director of the A1-Mag Division.

Radar in Peacetime: Every manufacturer of any size in the electronics industry is participating in the production of radar, the Navy Dept. reveals. This field, almost entirely absorbed by the military now, will be greatly enriched for application to commercial aviation after the war. Engineers predict conversion of electronics science to standardized instrument landing devices which will permit landings under all conditions and eliminate any worries about terminal weather difficulties.

Pennsylvania–Central Airlines projects

SEADROME ROUTE TO EUROPE



ISLANDS OF STEEL—800 MILES APART—well out of the fog and ice zones. There's a hotel to accommodate you if you wish to wait for a later plane. Seventy feet below the Seadrome deck is the ocean. You feel no roll or pitch, because the structure reaches to 160 feet below the surface!

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PCA files application with Civil Aeronautics Board

Here's *one* "post-war plan" that's right down to earth—and as practical as a piece of steel! Here's *one* dream that's ready and workable *right now!* And it *may be* the biggest bit of aviation news since the Wright Brothers' flight in 1903.

Think what this new Seadrome route means!

To America it means new island bases in the Atlantic . . . a strengthening of Uncle Sam's commercial arm . . . another step toward *keeping* America in the forefront of world affairs.

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These new "American Air Bases" are Seadromes, invented by Edward R. Armstrong, world-famed construction engineer. Floating steel islands, spaced at 800-mile intervals, they will stand 70 feet above the waves. Their draft of 160 feet will keep them as steady as the mainland itself.

Are they practical? America's outstanding engineers say "yes." Aviation experts concur. And the American Bureau of Shipping rates the Seadrome structure ★A-1, the *highest rating possible.*

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Editorial

(Continued from page 1)

ficial to the people and the industry. But government ownership even of a minority interest can only lead to evils in perpetuity.

Advocates of government ownership (and there are perhaps more in high places than is generally realized) are confusing the need for constructive and intelligent government leadership in establishing the rights of this country for foreign air transportation, with the actual operation of the routes. It is clear enough that matters of reciprocity—or at least the pattern for same—must be established by the government. But this does not mean any necessity for the government becoming the operator, or even a partner in the operation.

The fact that numerous airlines of European countries were owned and operated by their respective governments before the war is hardly a significant precedent. Pre-war European airlines ranged from instruments of government diplomacy and training grounds for the armed services, to efficient traffic organizations with a minimum of government control. With the exception of Russia, all countries of Europe are small and compact. Belgium, France, Italy and even the British Isles, are each very small in area. There was not room for more than one major company in each country and air transportation was bound up with all of the hectic diplomacy and rivalry and trading that has entered into the unstable European picture. Is U. S. air transportation to be similarly shackled?

If all of Europe is willing to pool its air transport resources into one jointly-owned company, then we might concede that a single government-owned company might be sensible for the U. S. But are all of the European nations willing to operate one joint airline? Certainly not. It is farthest from their minds. Even a small country of eight million people like The Netherlands, living in an area slightly larger than Maryland, expects to operate over the world on the same par as the United States. It is not surprising that the Dutch have a single airline largely or completely controlled by their government. But we fail to see why this precedent, or any other European precedent, should provide a like pattern for the United States.

We likewise fail to see what government participation can accomplish that sound, intelligent regulation cannot accomplish. And if we are seeking European precedents, there is at least one outstanding example of what government ownership did *not* do. We believe our British friends will agree readily with us that British Overseas Airways, and its predecessor Imperial Airways, was anything but perfect as an air transport company.

As for the second salient fundamental factor, let us find out where U. S. airplanes can fly before we decide upon the operators. Let us settle the problems of rights of transit, both for innocent passage and for commercial purposes. Let us find out what areas of the world, if any, are to be closed to U. S. airplanes. Let's find out the trade areas that need to be served. Above all, let us discover what this country wants in air transportation and match it with the desires of other nations. This is the current work of the interdepartmental committee created a few months back.

There are encouraging signs in Congress that government ownership or participation will be strongly opposed. We have faith in the elected representatives of the people of the United States that they will not agree to a precedent that is neither necessary nor desirable.

The New York address recently of Col. Edgar S. Gorrell, president of the Air Transport Association, typifies the thinking of the air transport industry and he is to be commended for coming out staunchly against government interference. His words in a carefully-thought-out address will carry weight.

It may well be that government ownership or participation in U. S. foreign air transportation will become the biggest test of free enterprise vs. bureaucracy to come out of the war. If this country is truly fighting for the four freedoms, let's not nullify those freedoms by destroying the one thing that can make U. S. and world aviation strong: free enterprise.

They Will Not Be Forgotten

IN COMMON with all who knew them, we mourn the loss of two outstanding airmen who contributed so much to the uphill battle of the Army Air forces through the years. Major General Frank Andrews was an unswerving and uncompromising believer in airpower and was one of those who suffered the consequences of remaining true to those beliefs. His assignments since war broke out were vindication for his previous exile, and his death in Iceland was not only most untimely on the eve of great events in Europe, but a very great loss to U. S. aviation. Major General Robert M. Olds, in poor health in the past few years, was another stalwart believer in airpower who defied the tank generals to prove the effectiveness of four-engined bombers. The great Air Transport Command of today was originally set up by General Olds. His contribution to U. S. aviation was important and it is to be regretted that he could not live to see the fulfillment, at least in part, of some of his dreams. The pioneering work done by General Andrews and General Olds will contribute immeasurably to the final victory.

Expansion

NOTHING could testify more forcefully to the great expansion of air transportation in recent years than the present total of employes of Pan American Airways. Mr. Juan T. Trippe disclosed the other day that PAA now has 88,000 persons employed, thus placing the company as one of the major employers in the nation. A portion of this total is engaged in contract airport work for the U. S. Government, but nonetheless they are included in the PAA family. It wasn't so long ago that the total employment of the entire air transport industry was under 15,000. Considering the widespread activities of PAA, the employment figure becomes even more impressive. A breakdown showing the location of these employes over the globe would be highly interesting.

WAYNE W. PARRISH

Captain Polifka's Lockheed Lightning...

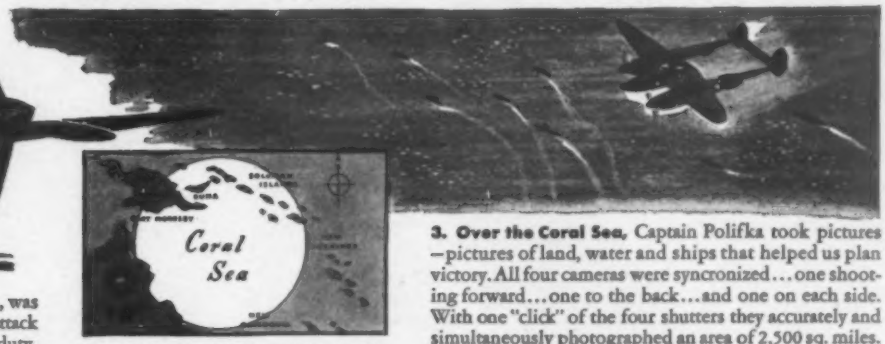
THE EYES OF THE CORAL SEA BATTLE

Aerial photography has become such an important part of modern warfare that some of our best planes and best pilots have been diverted from actual combat to take the pictures so necessary to victory. It's one sure way to locate the enemy, measure his strength and plan a strategy that will beat him.

Read the exciting story of Captain Polifka and the Lockheed Lightning that became the "eyes of the Coral Sea Battle" and you will understand why the air forces of our Army and Navy can no longer use slow, underpowered planes on important jobs that have a direct bearing on our Freedom.

1. Karl Polifka, U. S. Army Captain, was chosen to hunt out the Japs about to attack the U. S. Fleet in the Coral Sea—his duty, to get accurate information on the size and strength of the enemy forces as well as their location. Four powerful aerial cameras were installed in the nose of his Lightning. All guns were removed because of their weight.

2. The Scene of the Coral Sea Battle is shown on this map. The lighter area within the circle was covered completely by Captain Polifka. Developed prints of this immense region, though taken from an altitude of 25,000 feet, were amazingly accurate to within eight feet.



3. Over the Coral Sea, Captain Polifka took pictures—pictures of land, water and ships that helped us plan victory. All four cameras were syncronized...one shooting forward...one to the back...and one on each side. With one "click" of the four shutters they accurately and simultaneously photographed an area of 2,500 sq. miles.

4. Polifka's Lockheed Lightning proved its superiority over Japanese Zeros during this mission. Over Rabaul, ten of these fast planes took up the chase. Jamming the throttle home, Polifka out-sped, out-climbed them all, and did it with one engine functioning imperfectly.

5. On to Salamaua and Lae sped Polifka to finish his reconnaissance job. Here three more Zeros swooped in to attack. Climbing, diving, hiding in clouds, the Lightning shook them again and on one motor flew to Port Moresby where the pictures were delivered.

6. While he was reporting to Col. "Buzz" Wagner, the flying hero of the Philippines, Japanese planes attacked the airfield. But Polifka, confident of his plane even on one engine—took off in the thick of the raid and flew to the safety of his home base hidden deep in the jungle twenty miles away.

This is one of a series of stories about Lockheed...its men...its accomplishments. Watch the pages of this magazine for another thrilling aviation adventure.

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P-39—Airacobra
P-40—Kittyhawk
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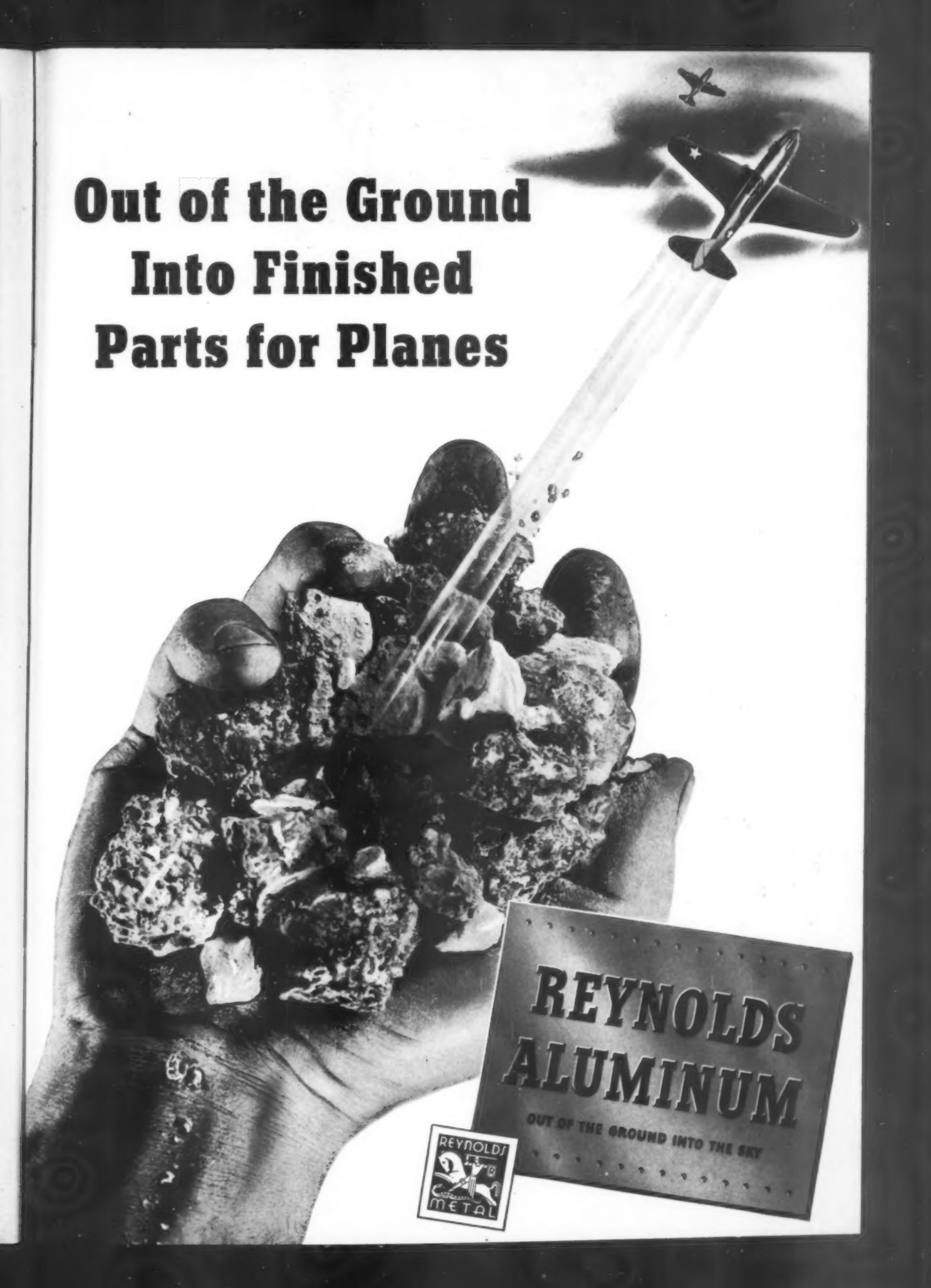

Out of the Ground
Into Finished
Parts for Planes
REYNOLDS
ALUMINUM
OUT OF THE GROUND INTO THE SKY
REYNOLDS
METAL

SAVE MANPOWER

ROUTING: With continuous expansion, Reynolds now is equipped and staffed for all types of routing operations. All manufacturers have to do is to supply the blue prints and templates. Reynolds makes the tools and furnishes you finished routed parts.

THE armed services are calling more men every day. Farms and factories alike face a critical shortage of trained workers.

Manpower is the big problem this year . . . and Reynolds has prepared to help you meet it, like we are helping other aircraft manufacturers — by finishing aircraft parts *at the aluminum source.*

For over a year, we've been training women workers for our Parts Division in Louisville. Recently, we have expanded our parts' facilities — added 250,000 square feet of floor space for parts-making alone.

Now, as the result of this training and expansion program, we have immediate open capacity to finish flat and formed parts to your exact engineering specifications — to relieve skilled labor in your plants for other important work in aircraft factories.

Call our representative in your city. Tell him your individual parts-making problem. Let us help you conserve precious manpower now.

SAVE PLANT SPACE

SHEARING: As the result of extensive adaptations of machines, Reynolds has a large capacity for shearing operations. Equipment includes batteries of 6, 8, 10, 12 and 14-foot power shears for handling required dimensions.

UNDER your present set-up you're probably using valuable space finishing parts and handling and storing scrap in your plants — space that you need . . . that you could use immediately . . . in your assembly operations.

With finished aluminum parts flowing to your assembly lines direct from Reynolds, you save this floor space for important work that cannot be done outside your aircraft plants.

Yes, and you save vital tools and critical machines, too. Often Reynolds finishes identical parts for several manufacturers making the same planes, thus eliminating the necessity for high-cost small-volume runs in aircraft plants.

SAVE SCRAP HANDLING

PUNCH PRESSES: For months, Reynolds has been adding punch press facilities and training women operators. Now, with a reservoir of trained women, we can handle a much greater volume of this operation.

REYNOLDS finished parts save the time, waste effort and needless expense now involved in handling and shipping scrap.

Under the Reynolds plan, scrap from routing, shearing and blanking is free from contamination and is immediately re-rolled into prime sheet. Overnight, the scrap is put right back into more parts to increase our production for you. In these days of ingot shortages, this vital scrap is never allowed to be idle. It's in production all the time.

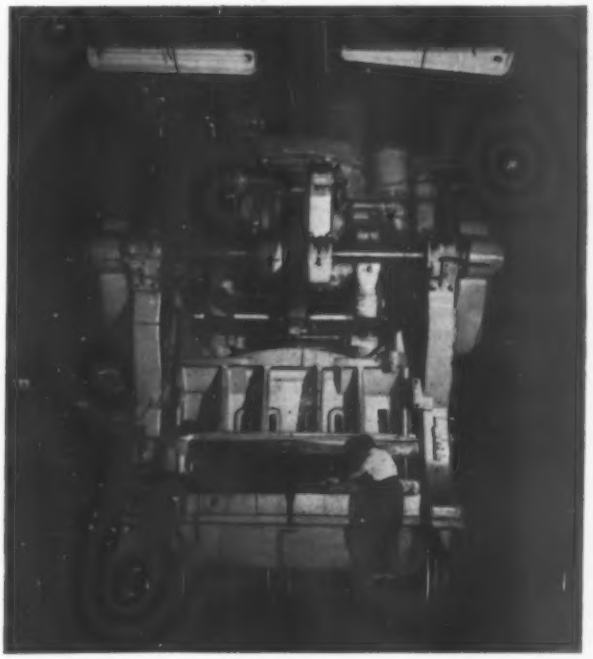
Needless cross-hauling is eliminated, freeing hundreds of freight cars every year. In figuring prices on aircraft parts, Reynolds allows plane manufacturers the full ceiling prices for scrap accumulated. This saves the entire cost of handling scrap.

Your whole operation is simplified and more efficient. You buy only what you can use . . . finished aircraft parts. And you get more of them . . . faster . . . to meet your stepped up schedules.

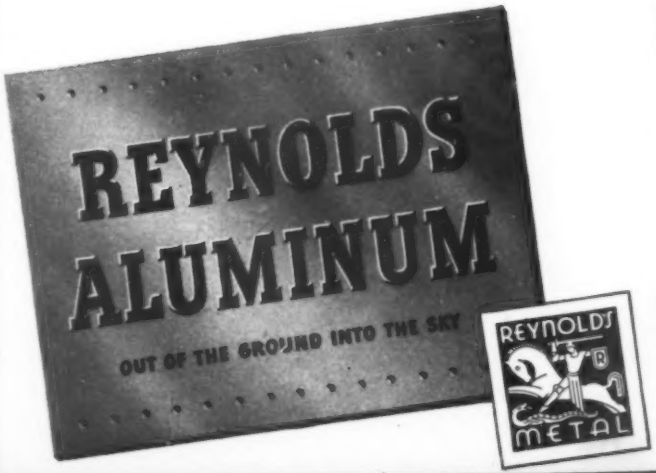
.with Reynolds Fabricated Parts!

INSPECTION: Reynolds' finished parts meet the same high standards as Reynolds Aluminum itself. Every piece is meticulously inspected at various stages in the process of fabrication and in the final inspection department before shipment. Army and Navy inspectors, as well as Reynolds' inspectors, are on the job all the time to make certain that each order meets exact specifications as to chemical and physical properties, size, hardness and surface.

ANODIZING AND PAINTING: To make its fabricating service complete, Reynolds has added anodizing, chromidizing and painting facilities and has trained personnel for these operations. Thus, this service takes every parts-making headache away from aircraft manufacturers.



GIANT PRESSES: From factories formerly turning out civilian products, Reynolds has obtained huge batteries of mechanical and hydraulic presses. These presses range from the smallest sizes to this 1300-ton giant.



NO SCRAP...

YOU BUY PARTS
READY FOR ASSEMBLY!

Facts About YOUR New Source of ALUMINUM

Virtually every warplane that you of the American aircraft industry are speeding to the fighting fronts, carries some Reynolds Aluminum into battle. Reynolds created a new source of aluminum long before Pearl Harbor, and today Reynolds is pushing a steady flow of this precious metal to your plants. Here are some of the things we have done... and are doing now... to help you win this war... and the peace to come... with more aluminum:

TWENTY YEARS' EXPERIENCE IN ALUMINUM: The two decades between world wars saw Reynolds piling up priceless experience, rolling light metal in tremendous volume. As America's largest aluminum foil producer, we rolled more square miles of light-gauge metal than any other manufacturer in the entire world.

SAW AMERICA'S NEED AND STARTED ACTION: 'Way back in 1939, when the Axis' aluminum output was twice that of the United States, Reynolds foresaw America's coming need and started action. We mortgaged all of our resources to expand our aluminum facilities.

MINED OWN BAUXITE ORE IN AMERICA: In 1940 and '41, when gray Nazi waves swept over France, Reynolds prepared. We started mining our own Bauxite in Arkansas. We built mammoth new plants to carry it through to finished metal, including one giant at Listerhill, Ala., where Bauxite flows in one side and aluminum sheet for aircraft flows out the other.

NEW SOURCE ROLLING WHEN WAR CAME: On fateful Dec. 7th, when the Japs struck, Reynolds was ready and rolling with virgin aluminum plants, rolling mills and rod mills at Listerhill, Ala. — with ingot molding units at Longview, Wash. — with sheet plants, rod mills, and extrusion plants in Louisville, Ky. — and with expanding sheet facilities at Richmond, Va.

NOW SERVING THOUSANDS OF WAR PLANTS: As America plunged deeper into all-out war, Reynolds dug deeper into its Bauxite hills and multiplied production manyfold. Now Reynolds alone is mining 36% more Bauxite ore than was mined in the entire nation three years ago. We're turning out hundreds of millions of pounds of aluminum to feed literally thousands of war plants. Our 37 factories in 13 states are operating 24 hours a day.

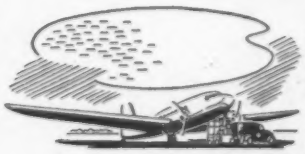
PREMIUM METAL . . . 99.85 PER CENT PURE: Reynolds uses the modern continuous electrode process. This simplified production helped raise the purity of the Reynolds product above the average of the aluminum industry. Today, 99% of the output of our newest plant is premium metal with a purity of 99.60% or higher. Substantial quantities are 99.85% pure.

VISION AND PRECISION FOR YOUR PROBLEMS: With this record of foresight and initiative, Reynolds offers the products and services of a great new independent aluminum source. We're ready now to analyze your individual aluminum needs — to give them the same precision planning and prompt action that has gone into the building of our own organization. Feel free to call on us now — and always.

REYNOLDS METALS COMPANY
General Offices, Richmond, Va.
Parts Division, Louisville, Ky.
37 Plants in 13 States

International Air Express

You can help expedite the nation's war shipments by following some simple "work-together" suggestions



• The increasing activities of International Air Express emphasize the wartime need for this swift way to move materials. How much *more* can be transported often depends on proper packing. For your country—and you—to get fullest advantage from International Air Express, do these things:

1 Divide your shipment into small units. They are more flexible in handling and permit *maximum* use of space.

2 Pack in light-weight containers.

3 Arrange beforehand to have pick-up made at time shipment will be ready. Thus you *(1)* reduce time lost waiting for pick-up, *(2)* often get your shipment aboard earlier plane and *(3)* help prevent "bottlenecks" in air cargo space at the end of the day.

Your help will be another aid-to-war. The outcome will be not only more efficient use of cargo space but more cargo space for all.

For shipments "south of the border," American Airlines provides International Air Express service to Monterrey and Mexico City. To secure Air Express pick-up, call Railway Express Agency, Air Express Division. *Shipments to Mexico are easy to make when you mark them:* "Via American Airlines."

AMERICAN AIRLINES *Inc.*

ROUTE OF THE FLAGSHIPS

They're on the last lap

These machine gun bullets are boring their way toward a Jap Zero—about to complete a job that started several hundred miles back.

Gunpowder shot them down the home stretch—but gasoline carried them most of the way.

A fighting plane is a machine gun nest on wings—a flying "pillbox" that has to be maneuvered into position. Pilot's skill and engine power do the maneuvering; engine power, in turn, depends largely on the quality of gasoline the engine can be designed to use.

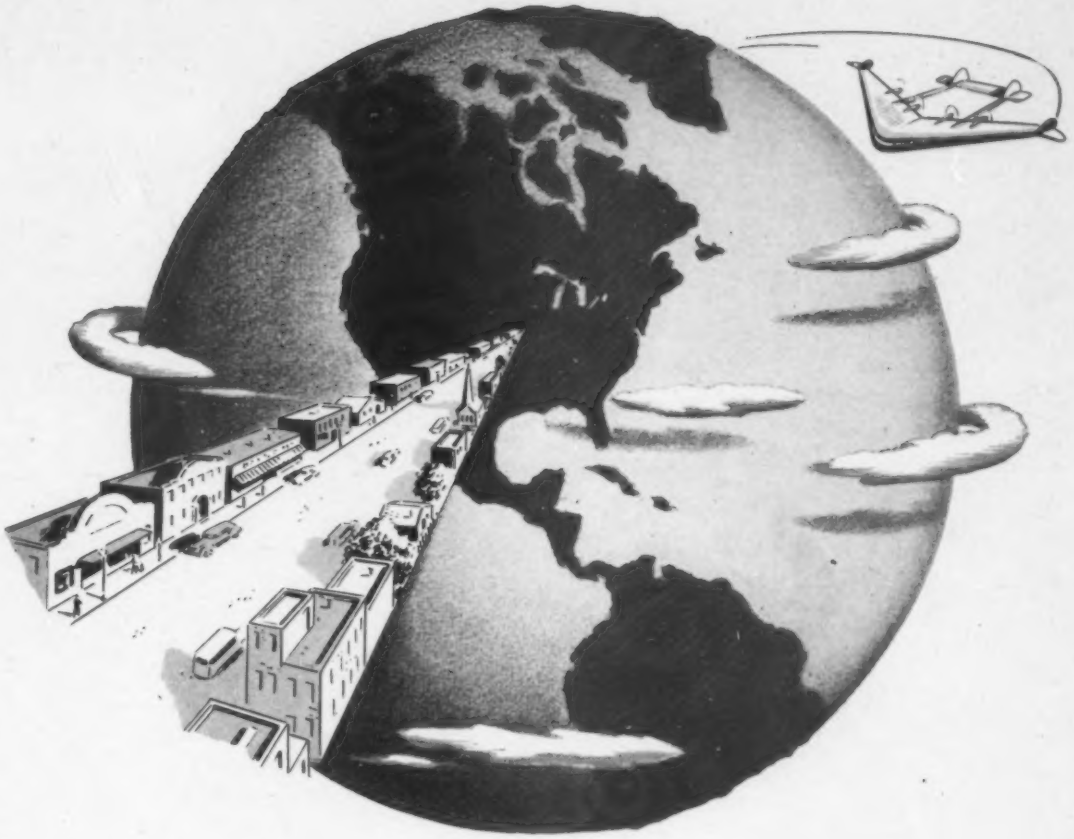
Long before the war, chemists and engineers of America's petroleum industry matched brains for ways to make new and better aviation fuel. War found the industry ready to roll—ready to turn out the vast quantities of "fighting grade" gasoline necessary for sky supremacy.

Into each gallon of this super-gasoline—and into the military gasoline for motorized land and sea weapons—goes Ethyl antiknock fluid. It boosts already high octane ratings still higher; it packs in that extra punch.

Ethyl has gone to war—on every front where gasoline is used. And when at last the war is won, these new and better fuels "with Ethyl" will help America lead the world again in aviation and in automotive transportation.

ETHYL CORPORATION
Chrysler Building
New York City

Manufacturer of Ethyl fluid, used by oil refiners to improve the antiknock quality of aviation and motor gasoline.



THE GLOBE STARTS ON YOUR MAIN STREET!

In the tomorrow that is nearly today, there will be no limit to the journeys *you* can take by stepping outside *your* front door. Following the peace, air transportation . . . both local and world-wide . . . will encompass *all* the millions of Americans living on friendly Main Streets throughout the 48 states, will enrich *your* life and *your* community.

PRESIDENT

BRANIFF *Airways*

Chicago, Kansas City, Wichita, Oklahoma City, Dallas, Fort Worth, Houston, Amarillo, Wichita Falls, Austin, San Antonio, Corpus Christi, Brownsville.

BUY WAR BONDS AND STAMPS

Balcony Scene

Next time you read a headline that says: "100 FLYING FORTRESSES RAID AXIS," remember this scene. It is one of the reasons such raids are possible, not just on one front alone but in many parts of the world simultaneously!

You are standing on a balcony in the Boeing plant at Seattle. If you are at all familiar with conventional airplane construction, the first thing that strikes you is the "chrysalis" appearance of much of what you see . . . the unusual effect of bodies without wings.

One method of aircraft production is to move the airplane under construction down a long assembly line, picking up a part here and a part there. Thousands of complicated interior installations are made in the plane as it progresses.

Boeing, by using new and different production methods, has proved that it can build more pounds of airplane structure per unit of floor area than by any other method devised for similar structure. It employs a multiple-line system to *pre-complete* each major section of the Fortress,* including all interior installations. Final assembly is thus simplified into merely a joining and hooking-up process.

The result is that Boeing has constantly increased its schedules until today its *rate* of production on Flying Fortresses is more than 4 *times greater* than at the time of Pearl Harbor, with total deliveries for 1942 *eight times* those of 1941. Boeing output is highest of any company making airplanes—per man, per machine, per unit of floor space.

When peace is finally won, Boeing production and engineering skills will be turned toward giving you interesting new products, superbly designed. And of any product you can know . . . if it's "Built by Boeing" it's bound to be good.

DESIGNERS OF THE FLYING FORTRESS • THE STRATOLINER • PAN AMERICAN CLIPPERS **BOEING**

*THE TERMS "FLYING FORTRESS" AND "STRATOLINER" ARE REGISTERED BOEING TRADE-MARKS

American Aviation

Independent Air Commission Proposed

Revised Lea Bill Separates CAA from Commerce Dept.

By KATHERINE E. JOHNSEN

UNSHACKLING of the Civil Aeronautics Authority from the Commerce Department, which some Congressional aviation leaders have long been convinced would promote freer development of the industry, has forthright advocacy for the first time in three years on Capitol Hill.

A new version of the Lea bill—envisioned as "The Civil Aeronautics Act of 1943," providing for the establishment of an independent Civil Aeronautics Commission with an independent Director of Aviation Accident Investigation, was approved by the aviation subcommittee of the House Interstate and Foreign Commerce Committee a few days after the re-draft was submitted by the committee's three top men—Rep. Clarence Lea (D., Calif.), chairman; Rep. Charles Wolverton (R., N. J.), ranking minority member; and Rep. Alfred Bulwinkle (D., N. C.), chairman of the aviation subcommittee.

Bulwinkle

Other Congressmen on the aviation subcommittee are: Boren (D., Okla.); Holmes (R., Mass.); Hinshaw (R., Calif.); Howell (R., Ill.); Beckworth (D., Tex.); Myers (D., Pa.); Harless (D., Ariz.); and O'Hara (R., Minn.).

Introduction Expected

Introduction of the revised bill, in lieu of the old bill which has been pending before the House since Feb. 11, is expected to follow immediately. This parliamentary procedure will circumvent the lengthy process of making 101-odd amendments on the floor.

Explaining the proposal for the thorough-going CAA reorganization, Bulwinkle said:

"The Authority, which includes the Civil Aeronautics Board and the Administrator of Civil Aeronautics, was an independent agency prior to June 30, 1940, when it was placed in the Department of Commerce by the President's Reorganization Plan No. IV.

"Under our present proposal the present Civil Aeronautics Board would be known as the Civil Aeronautics Commission, would be composed of the present membership of the Board and would exercise its existing powers, and, in addition, such other powers as may be granted by the pending legislation . . .

"The Commission would have general supervision over the Administrator of Civil Aeronautics, who since 1940 has been subject to the supervision of the Secretary of Commerce. The Administrator would continue to exercise powers relating to safety regulation of areonautics and the establishment and operation of air navigation facilities, and would exercise such other powers as may be granted . . .

"Our proposal also contemplates the restoration of independent investigation of aircraft accidents. This function would be carried out by a Director of Aviation Accident Investigation, who would act entirely independently of the Commission and the Administrator."

CAB Would Gain

A gain in authority would be scored by the present Civil Aeronautics Board, chairmaned by L. Welch Pogue, if the new proposal carried. The Civil Aeronautics Administrator, Charles I. Stanton, would become answerable to what is now the CAB, instead of to the office of Secretary of Commerce Jesse Jones. The Administrator would have complete jurisdiction, however, over certain matters such as establishment of airways and air navigation facilities, handling of air traffic, etc. The new Director of Aviation Accident Investigation would be appointed by the President with the advice and consent of the Senate, would have a salary of $10,000 a year.

Interstate and Foreign Commerce Committeemen, in framing the comprehensive Lea bill with its far-reaching provisions looking to the anticipated growth of commercial and civil aviation in the post-war era, wavered between two alternatives: (1) patterning the legislation in line with the President's Reorganization Order of 1940, which placed the CAA under the Commerce Department and abolished the independent Safety Board; or (2) overriding the Reorganization order and reverting back to the organizational set-up provided in the Civil Aeronautics Act of 1938.

Chairman Lea and several other members of the Committee have consistently and outrightly questioned the wisdom of the President's executive action abolishing CAA's independence.

Unified Control

During opening days of hearings on the bill, committeemen expressed regret that CAA had not remained independent. Their position during that period—when support for a separate aviation committee in the House was gaining considerable momentum—was that there should be a unified control of all transportation matters at the legislative or policy making end of government, that a separate aviation committee would bring chaos and inequality especially in rate-determining matters, but that unhindered development of the new aviation industry just "getting on its feet" could be best effected by an independent body devoted exclusively to its needs at the executive or administrative end of government.

Hesitancy as to the advisability of reversing the President's action, however, was evident.

The decision was evaded in the bill reported out of Committee in February. Then, after further consideration of the legislation, prompted by active opposition from advocates of state's rights to the reported bill, Lea told *American Aviation* that the decision was to draw up a revised bill in line with the President's order, thus writing it into statute law.

Finally, however, after further weeks of weighing the pros and cons and study behind closed doors, Lea, Bulwinkle, and Wolverton recommended a re-drafted version—providing for CAA's independence—on May 18 that was approved by the aviation subcommittee on May 22.

Senate Will Study

If Interstate and Foreign Commerce Committeemen, after full committee approval, successfully guide the new legislation through the House, it still awaits a "rough ride" in the Senate.

Key Senators who had not had time to analyze the new bill as this issue went to press were non-committal on the reorganization proposal. Chairman Josiah Bailey (D., N. C.) of the Commerce Committee, reported that he would introduce a companion bill in the Senate, but that this move does not signal his sponsorship of the proposal, is only to bring the legislation before his body. He emphasized that "very lengthy" hearings will be held evaluating both the new and old versions of the Lea bill before any decisive action is taken by his Committee.

Sen. Pat McCarran (D., Nev.), aviation stalwart who for the first time this year was appointed to a place on the Commerce Committee which handles all

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War Role: There has been much talk about the use of lightplanes in war, and many pictures have been released showing their use in maneuvers. The above photo, however, is the real McCoy. The Stinson has just taken off from a roadway near the African battlefront after landing a liaison officer. The plane, piloted by a New Zealander, landed and took off on a narrow stretch of road while traffic was held up for the purpose.

Aircraft Scheduling Group Expected to Aid Production

Action taken by WPB in the past two weeks has brought simultaneously more rigid control over aircraft manufacture and a partial return of power back to WPB from the Army.

This action, the result of a three day conference between industry representatives and the Aircraft Production Board, resulted in the announcement of a new committee for the planning and control of aircraft production.

This committee, which functions separately from the Aircraft Resources Control Office, reporting directly to Charles E. Wilson, executive vice chairman of WPB in his capacity as head of the Aircraft Production Board, was scheduled to hold its first meeting May 27-29 at Wright Field, Dayton, Ohio. Members of the committee, which will meet once a month hereafter to make specific recommendations to Wilson, will include representatives of the airframe manufacturers and the producers of various airplane parts, of the Aircraft Scheduling Unit, the Aircraft Resources Control Office and the Aluminum and Magnesium Division of WPB.

Wilson described the critical conditions necessitating this move toward more rigid control, when he said, "Despite outstanding successes to date, the enlarged aircraft production goals for this year and next, calling both for heavier planes and a greater volume, can only be met through the most exact scheduling of the output of parts and pieces needed in their manufacture." The new program will accomplish this purpose through careful scheduling of production and distribution of plane components, especially aluminum extrusions and forgings.

More Production Seen

"This action represents a refinement of production planning designed to bring about the greatest possible production of certain parts required for the manufacture of the heavier combat ships and their proper distribution to the aircraft manufacturers to whom the Aircraft Production Board is looking for accelerated production of these ships," Mr. Wilson said. "Even with the provision of greatly increased facilities for aircraft manufacture, which have been coming into operation at a vastly accelerated rate, the Board is determined to bring about still greater increases."

The meeting which culminated in the creation of a new planning and control group was held in Washington May 13 through 15 before the full Aircraft Production Board, whose members are Charles E. Wilson, chairman; Lieut. General William S. Knudsen; Major General Oliver P. Echols, Chief of the Materiel Command, Army Air Forces; Rear Admiral Ralph E. Davison, Ass't Chief of the Navy's Bureau of Aeronautics, and Theodore P. Wright, Recorder and Director of the Aircraft Resources Control Office.

Industry representatives included: LaMotte T. Cohu, president of the National Aircraft War Production Council; Frank F. Russell, general manager of the Council; J. H. Kindleberger, president of North American Aviation; Ralph Damon, president of Republic Aviation; Ray Whitman, vice president of Bell Aircraft; John C. Lee, manager of the West Coast AWPC; Kenneth Ellington, of East Coast AWPC. Key material men from the West Coast Council were Robert Monroe, North American; Ed Jones, Consolidated Vultee; Don J. Bosio, Douglas Aircraft; and from East Coast Council: L. J. Shaw, Bell Aircraft; Bernard Cole, Curtiss-Wright; and R. H. McMann, Republic Aircraft. Also present were representatives of aluminum manufacturers, the Aircraft Scheduling Unit, the Aluminum and Magnesium Division of WPB and the Contolled Materials Plan Division.

Meeting "Productive"

Wilson called the meeting "most productive," declaring, "it brought from all those present unanimous approval of this new planning and production control system, which involves all of those items whose substantially increased production and distribution for the balance of this year is necessary to insure the greatest possible production of fighting ships or the types desired by the Services. Part of the job of this new, somewhat informal group will be to study inventory positions in the field of fabricated parts where the demand is increasing, so that month by month output of these parts can be used to the fullest advantage in current production."

Aircraft components have some categories which are easy and others which are tight. Engines, airframes and propellors present no worries at this time. But, as Wilson pointed out on May 21, there are less obvious items for the assembly line which the new planning and control group must find ways to make more available. There are bottlenecks in aluminum forgings and extrusions. From month to month the specific items which need expediting are not the same. But in this field trouble now exists and must be fought steadily during the near future. Exact scheduling of parts and pieces appears to be the only solution.

"The new controls have met with no objections from aircraft men," Wilson stated, "in fact they hailed it with enthusiasm. The Army and Navy are for it too. In fact, I don't know anybody who isn't." Spokesmen of the War Department expressed no worries about their jurisdiction, even though Wilson's return to active duty on the Aircraft production front would seem of necessity to affect the virtual control which the Army now exercises.

Perhaps reason for this harmony lies in the fact that assembly of elementary parts is a problem so newly serious that the old controls never had a grasp of it. As Wilson explained it in figures, it is a case of aircraft today needing 7,500 to 10,000 types of extrusions with increases at the rate of about 350 new types a month, where none were needed a few years ago. The size of the problem is made even clearer by the realization that these parts must be produced at an expanding rate at a time when material is short. Wilson's new committee has tough work cut out for it. But they face the job having the very important asset of general approval of them and their purposes.

Action by the Wilson group is to be directed at three focal points, inventories of aluminum, production of extrusions and their distribution. It is expected that there will be new standards for warehouse supply. As Wilson pointedly explained: At a time when we are working close to the top limit, we can't permit wastage through long-term inventories. Producers will be expected to take on stocks of precious aluminum only as they are ready to use it. Such a program underlies Wilson's statement that: "There appears to be ample supply for all aluminum needed in 1943." Aluminum exists to use but there is not enough to store up in waiting stocks.

From the paring of inventories the committee must go to scheduling production of extrusions. The object is to relate warehouse stocks of aluminum to the pressing demands for fabricated extrusions. These schedules are counterparts of others already existing in the case of aluminum forgings.

Heavier Schedule Seen

Solution of the components problem will depend much on easing the flow of finished extrusions. As production of heavier planes increases, it will be necessary that every component be ready for assembly in a plane at the right place and time. But much has already been done in this quarter. As Wilson expressed it, "we are not now losing a single plane from lack of extrusions." The committee must look ahead to heavier and heavier airplane schedules and seek to achieve the same record of no planes unfinished for lack of extrusions.

Numbers of aircraft no longer tell the story of this country's gains in production. Our assembly lines now turn out not only twice as many bombers a month as this time last year, but the planes weigh three times as much. Strategy now demands of manufacturers that fliers be able to take up heavier guns, have for their protection better armor, and carry a mightier tonnage of bombs. The

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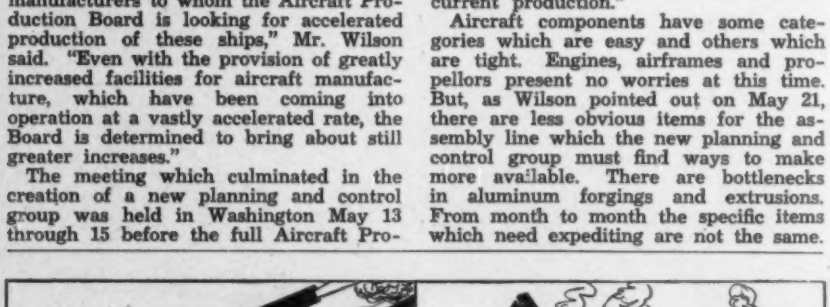


Thomas in Detroit News

The Production Guns

Churchill Calls Airpower 'Major Factor' in War; Sees More Gains

Allied airpower is the force which already has shown the "mortal weakness" of the Axis, and the experiment of trying to bring about the collapse of Germany or Italy by airpower alone is well worth trying, so long as other measures are not excluded, Britain's Prime Minister Winston Churchill declared in his talk before the U. S. Congress on May 19.

His speech was one of the strongest and most significant endorsements of airpower made by any Allied leader, and he also warned that "in this war, numbers count more and more."

Mr. Churchill said in part:

"We are conducting from the British Isles the principal air offensive against Germany. And in this war we are powerfully aided by the United States Air Force in the United Kingdom, whose action is chiefly by day, as ours is chiefly by night. In this war numbers count more and more, both in night and day attacks.

"The situation of the enemy's flak through the multiplicity of attacking planes, the division and dispersion of his fighter protection by the launching of several simultaneous attacks are rewards which will immediately be paid through the substantial increases in British and American numbers which are now taking place. There is no doubt that the Allies already vastly outnumber the hostile air forces of Germany, Italy and Japan. And still more does their output of new planes surpass the output of the enemy.

"In this air war, by which both Germany and Japan fondly imagined they would strike decisive and final blows and terrorize nations, great and small, into submission to their will, in this air war it is that these guilty nations have already begun to show their first real mortal weakness.

"The more continuous and severe the air fighting becomes, the better for us because we can already replace casualties and the machines far more rapidly than the enemy and we can replace them on a scale which increases month by month.

"Progress in this sphere is swift and sure, but it must be remembered that the preparation and development of airfields and the movement of the great masses of ground personnel on whom the efficiency of modern air squadrons depend, however earnestly pressed forward, is bound to take time.

"Opinion is divided as to whether the use of airpower could by itself bring about the collapse in Germany or Italy. The experiment is well worth trying, so long as other measures are not excluded. . . .

"The condition to which the great centers of German war industry, and particularly the Ruhr, are being reduced, is one of unparalleled devastation. . . .

"Our air offensive is forcing Germany to withdraw an ever-larger proportion of its war-making capacity from the fighting fronts in order to provide protection against the air attacks. Hundreds of fighter aircraft, thousands of anti-aircraft cannon, and many hundreds of thousands of men, together with a vast share in the output of the war factories, have already been assigned to this purely defensive function. All this at the expense of the enemy's power of new aggression or of the enemy's power to resume the initiative.

"Surveying the whole aspect of the air war, we cannot doubt that it is a major factor in the process of victory. That, I think, is established as a solid fact. It is all agreed between us that we should at the earliest moment similarly bring our joint air power to bear upon the military targets in the homelands of Japan."

Thunderbolt Now in Quantity Production Wins Pilots' Praise

The P-47 Thunderbolt, heaviest of the American single-motored fighter planes, is now in quantity production for the AAF, the War Dept. officially disclosed recently. It is designed and built by Republic Aviation Corp.

Within a few days after the War Department's release, dispatches from London disclosed that the Thunderbolt went into action early in May against the Nazis and immediately claimed an impressive record and was enthusiastically praised by a number of AAF pilots.

In their first mission, Thunderbolts escorted Flying Fortresses in a raid over Antwerp, shot down at least four German Focke-Wulf 190s, and shepherded all of the Fortresses back safely.

One of the newest types at the front, the P-47 is reported to be able to fly in excess of 400 miles per hour, is capable of performing at heights of 40,000 feet, and has a ferrying range of 1,000 miles.

As originally brought out, the Thunderbolt has eight 50-calibre machine guns. These give the plane fire power at the cycle rate of 6,500 rounds per minute, or more than 100 rounds of ammunition per second. The rate of the lead fired per second is equal to 20 30-calibre machine guns.

It is a low-wing monoplane with retractable landing gear, has a wing tip span of 41 feet, length of 32 feet, height 13 feet and a gross weight of 13,500 pounds.

It is powered by a Pratt & Whitney R-2800 motor rated at 2,000 horsepower and has a turbo-supercharger. The propeller is a Curtiss four-bladed automatic control, full-feathered type.

These planes went into action with the Fighter Command of the U. S. Eighth Air Force, headed by Brig. Gen. Frank O. Hunter. Dispatches telling of their first action at the front reported Lieut. Col. Donald K. Fargo of Shreveport, La., executive officer of the bomber station, as saying, "They are going to increase our safety 75%."

Two officers in a Flying Fortress reported seeing one Thunderbolt shoot down two Focke-Wulfs. "We were coming from the target and two FW's came in on us in trail," one spokesman said. "But a P-47 came in on them from in back and gave one a burst. He blew up. The P-47 kept right on firing and the other FW fell in flames."

The Thunderbolts closely resemble the FW-190s in physical appearance and at first posed a problem in recognition. Clear rings of white paint around the cowling and special tail markings have been given them.

Fights at 400: Now in quantity production, the P-47 Republic Thunderbolt is in action against the Nazis, the War Dept. has revealed officially. Able to fly faster than 400 mph and perform at heights of 40,000 feet, it has a ferrying range of 1,000 miles. Its eight 50-caliber machine guns cut a deadly pattern.

Air Forces to Get One-Third of Army's 1944 Appropriation

Almost a third of the $71,898,499,700 the President has asked Congress to appropriate for War Department activities during the coming fiscal year is for the Air Forces.

The President's request exceeds by about $6,000,000,000 the estimate which he submitted to Congress in his budget in January.

The increase of the aircraft production program, calling for an output of planes weighing 1,417,000,000 lbs. (excluding engine weight), as compared with the 911,000,000-lb. program calculated for this year, accounted for a major part of the increase.

"Ample funds are provided for overseas Army construction," the White House said on submitting the estimate, "including facilities to meet the needs of the rapidly expanding Air Transport Command in its operation of ferry routes throughout the world, and construction in the theaters of operation.

"Military construction in the U. S. will be much smaller than in recent years."

The revised estimate called for new appropriations amounting to $59,425,586,500 and reappropriations of unobligated balances totaling $12,472,913,200. Air Forces allocation is $23,655,481,000.

Following is a breakdown of the War Dept. estimate:

Pay and travel	$12,305,686,000
Subsistence	2,487,641,000
Clothing and equipage	1,894,038,000
Transportation	1,556,839,000
Signal Corps	4,658,896,000
Air Forces	23,655,481,000
Medical Department	455,112,000
Engineer Service	2,576,404,000
Ordnance Department	8,038,925,000
Chemical Warfare	342,260,000
Plant Facilities	749,000,000
Miscellaneous	705,302,500
TOTAL	$59,425,586,500

Roosevelt Adopts Weight as New Measure of Aircraft Production

Predicting that this year's record-breaking production of aircraft will be increased in 1944 by 55%, President Roosevelt recently made public comparative year-by-year output figures—using for the first time the method of measuring airplane production volume in millions of pounds.

Heretofore, the President has always spoken of airplane production in terms of units, including his message to Congress two years ago in which he set the original goals for the American "arsenal of democracy."

His decision to use pounds rather than units as a measure of aircraft production was pleasing in general to the industry, since it gives a truer picture of what is actually being turned out.

The President himself called attention to the fact that a four-engined bomber weighs almost 10 times as much as a single-engined fighter plane—illustrating the inadequacy of unit figures as a basis of comparison.

He told a press conference that production of four-engined bombers is now some six months ahead of schedules set last December.

The current production rate for aircraft in the United States is greater than the production rate of all the other nations of the world combined, he emphasized. American planes have a greater number of pounds per ship than any other nation, he said.

He made public the following simplified tabulation of production progress:

1941—87 million pounds of aircraft were turned out.

1942—291 million pounds of aircraft were produced.

1943—911 million pounds are expected to be produced.

1944—1,417 million pounds have been estimated.

The President pointed out that in 1941 emphasis was placed upon the need for defensive fighter planes, but the picture is now reversed and the production program has placed the U. S. on the offensive. More two and four-engine heavy bombers, long range fighters and large cargo planes are now being built than previously.

Qualified spokesmen of the aircraft industry estimated that the average weight of planes produced in 1941 was 5,500 pounds, while the average weight in 1943 will be between 3,000 and 9,000 pounds. The figures refer to airframe weight.

This method of computing production was expected to materially benefit the materials scheduling program, placing it on a realistic basis in relation to the size of planes being produced, industry observers said.

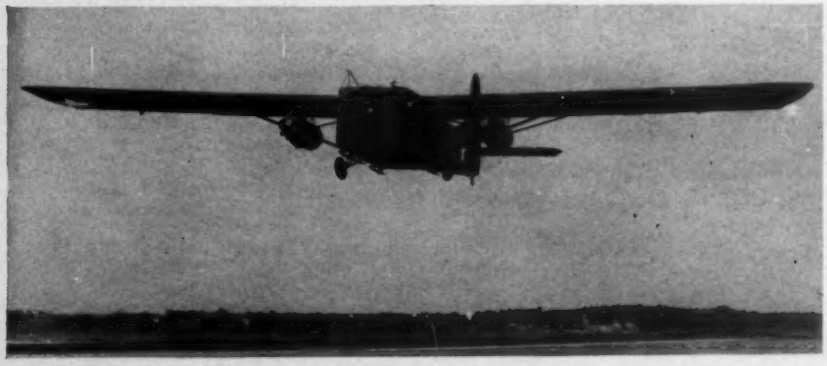
Army Tests a Troop Glider Powered by Detachable Motors

Wright Field engineers are testing a troop transport glider powered by two detachable motors, the first of its kind in the history of United States aviation. The glider was flown to Dayton from Minneapolis, where engineers of the Northwestern Aeronautical Corp. had outfitted it with 130 h.p. motors so designed that they can be detached or dismounted in an hour's time.

In its original design, the glider, a standard CG-4A type, was supposed to carry 15 men, or a jeep and its crew, or a 75 mm field gun, but glider experts now point to the possibility of using it as a cargo or hospital "plane."

There is considerable speculation on the importance of the role the power gliders will play on different fronts in the global war, but it is hoped that gliders being turned out in large numbers in various parts of the country can be made to substitute for more expensive and less maneuverable military aircraft for many purposes, according to Twin Cities sources.

The plan to install motors on the CG—4A was worked out by Northwestern engineers and Col. Fred R. Dent, in charge of the Army experimental glider program at Wright Field. It was their answer to demands for an arrangement by which gliders could be transported under their own power for hundreds of miles and their motors detached and returned by transport plane to be mounted on another glider at the factory.



Twin-Engined 'Glider': Two 130-hp detachable motors fly this CG-4A glider through the air with the greatest of ease.

Rosendahl Heads Airship Command

Rear Admiral Charles E. Rosendahl, the Navy's outstanding lighter-than-air expert, whose promotion from captain was recently approved by the Senate, has been named director of a new Naval Training Command for lighter-than-air.

Rosendahl

Rosendahl, veteran of 20 years experience with lighter - than-air, has just returned from seven-months' duty commanding a cruiser in the Pacific, and on May 15 assumed duties as chief of the first Naval Airship Training Command.

The new Command will combine all airship training under a single functional unit. With headquarters at the Naval Air Station, Lakehurst, N. J., it will include the Experimental and Flight Test Department and Training Center. In addition, the Command will cover the Naval Airship Training Center at Moffet Field, Calif. and such other units as may be assigned by the Vice-Chief of Naval Operations.

Creation of the new command gives the Navy five Naval Aviation Training Commands: the others beings: Naval Air Primary Training Command, Naval Air Intermediate Training Command, Naval Air Operational Training Command and Naval Air Technical Training Command.

The establishment of this Command "emphasizes the importance of the airship in the rapidly growing United States Navy air program," the Department states. "The contribution of blimps to the present system of safely escorting merchant vessels has resulted in sharp expansion of procurement and training since early in the war. The acquisition of a fleet of 200 airships was authorized by Congress and training activities were increased proportionately."

The assignment of a man of rear admiral's rank to airship duty was generally regarded as a reflection of the increasing size of the fleet and of the importance of its anti-submarine patrol work, especially on the Atlantic seaboard.

Rosendahl was graduated from the Naval Academy in 1914 and trained as a Naval Aviator (airship) seven years later. He was navigator of the rigid airship Shenandoah when it crashed in Ohio in 1925. With six other members of the crew, he free-ballooned the forward section of the ship safely to the ground.

He later became Commanding Officer of the dirigible Los Angeles for three years, followed by one year as Commander Rigid Airship Training and Experimental Squadron. In 1928 he observed trials of the German airship Graf Zeppelin and made the first North Atlantic crossing in that ship. He was also guest aboard it in its first world cruise. He became Commanding Officer of the Akron which later was lost. As Commanding Officer of the Lakehurst Naval Air Station during 1936 and 1937 he saw the German airship Hindenburg explode and burn by hydrogen fire.

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Out where the "fighting front" becomes grim reality instead of a glib phrase, E·L units are powering the "Walkie-Talkie" that serves as the voice and ears of our advance forces.

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THE SHAPE OF THINGS TO COME...

Perhaps you see only a giant exhaust collector ring for a twin-row engine. Actually you are pre-viewing a new and exactingly designed Ryan Exhaust Manifold System that insures the high standard of performance demanded of a certain American military combat plane.

In addition to their prime job of discharging exhaust gases and heat, Ryan manifolds are being developed to dampen exhaust flame, power turbo-superchargers, transfer heat for carburetion, cabin heat and wing de-icing.

As the only major aircraft manufacturer with an important division devoted to volume production of exhaust manifold systems, Ryan molds the shape of many things to come in the vital field of heat transfer engineering.

Exhaust Systems Manufacturing Division
RYAN AERONAUTICAL COMPANY
San Diego, California
Eastern Office, 420 Lexington Ave., N. Y.

Shift From Construction to Production Started by WPB

The cutback program for war industries, under way for some time as strategies of war have dictated necessary changes in war equipment and supplies, is expected to effect drastic modification of the overall production picture during the balance of the year.

The first official statement regarding the plan, made recently by the War Production Board, established the reason for present-day changeover by reporting that with the exception of certain special programs, some special machinery, and further expansion of raw materials production, the United States has the machine tools and the capital equipment it needs to build production to defeat the Axis.

According to the statement, all previously approved projects for construction of new manufacturing plants and machinery will be carefully examined to determine whether the need for them cannot be eliminated through more intensive use of present facilities. In fact, no purchase of machine tools, machinery or equipment or erection of buildings is to be authorized unless it can be proven conclusively that present facilities are not available for the purpose.

As interpreted by War Production Board executives, this will mean that construction of plants, even some of the largest, will be stopped and materials and manpower planned for their building diverted to end-product manufacturers of combat equipment. Construction workers may suffer some lag between jobs, but being skilled workers, it is felt that they can be absorbed in manufacturing, although the margin of difference between wage rates and a switch from building to production unions may occasion some difficulties before the workers can settle down to their new occupations.

Plan Plant Conversion

The machine tool industry will complete its present orders and then except for a small percentage of plants, will be converted into parts manufacture it is planned. Excess skilled labor from the industry is to be classified for the purpose of transfer to bottleneck manufacturing, particularly in precision instruments.

Washington also reports that the recent survey of idle machine tools disclosed many more than had been anticipated thus relieving a contemplated shortage caused by expanded production schedules in the "must" programs.

Other war manufacturers, particularly the smaller concerns, will find as their initial orders are completed, that their plants will be converted to the manufacture of parts for delivery to prime contractors. Some of these small organizations may be turned over to civilian supply output it is indicated, but only where they are not tooled, or where they are located in small, isolated communities.

Most of them will be converted into sub-contractors and one of the prime problems now facing Washington officials is said to be the coordination of the conversion program so that parts from widely varied types of plants will flow simultaneously and as needed to the final assembly line.

A very considerable shifting of production in the aircraft industry is predicted in order to provide parts and sub-assemblies in sufficient quantity to match the record-breaking program for 1943. This, although reduced from early announcement in regard to number of craft to be produced, will still strain the nation's economy to accomplish and every possible plant is to be put into operation directly upon sub-contracts. Many changes are contemplated.

Models Evaluated

The Army Air Forces is now evaluating models in line with combat performance. Some types of aircraft will not be made in the new program, others will be radically changed and improved. Where certain types are discontinued, the plants are to be used to make others, or be changed over into the manufacture of parts.

Every effort is being made in Washington to arrange the cutbacks and changeovers of the overall war production, and particularly that of aircraft, in an orderly manner to avoid unnecessary delays or hardships. So far, the conversion plans have worked out fairly successfully and it is hoped that experience gained in these initial undertakings will establish a procedure which will permit the greatly enlarged plan to be put into effect upon an efficient basis.

Maj. Gen. Geiger Heads Marine Corps Aviation

Major General Roy S. Geiger, Commander of Marine Aviation units on Guadalcanal, has returned from the South Pacific to head all Marine Corps Aviation activities, the Navy Department announced.

Major Geiger was the head of Marine Corps Aviation from 1931 to 1935 and was awarded a gold star for "outstanding achievement" on Guadalcanal from Sept. 3, 1942 to November 4. He will be replaced in the South Pacific by Major General Ralph J. Mitchell, who has been Director of Aviation in the Marine Corps since March, 1939.

WPB Reinstates Seven CAA Airport Projects

Seven Civil Aeronautics Administration airport projects which had been halted Jan. 15 by the War Production Board were reinstated May 13. Not all of the projects will be completed but sufficient work will go ahead to make them suitable for emergency landing and servicing fields, the Board announced.

The airports affected are at Willcox, Ariz.; Crushing, Okla.; Bradford-Kane, Pa.; Nogales, Ariz.; Natchez, Miss.; Mason City, Ia.; and Artesia, N. M. The original appropriations for the projects totaled $4,603,325. A proposal to lift the stop order on an airport project at Wilkes-Barre, Pa., was rejected by WPB on the grounds the field could not be completed before August, 1944. This project would have cost $2,880,000.

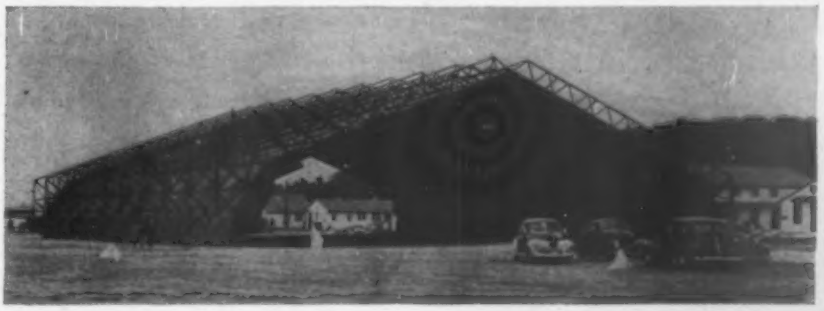
New Hangar Can Be Transported by Air

An arch type steel and canvas airplane combat hangar which can be transported by air and erected within a period of 12 to 18 hours has been developed by the Butler Manufacturing Co., Kansas City, Mo., in the completion of studies begun by Army Air Corps engineers to meet one of the needs of modern war.

The hangar is 130 by 160 feet with a minimum center clearance of 39 feet. Flame-proofed canvas suspended beneath the steel frame work provides the covering, and also makes it resilient to explosion force and susceptible to quick repairs. Canvas sections are completely fabricated and need only to be assembled on the job by lacing, similar to that used on large circus tents.

Equipment for the complete erection is furnished as a part of the building. Steel members are so proportioned they can be packaged one inside of the other for shipment, and are so numbered that upon arrival of the first few packages the erection can be started independent of the other packages necessary to complete the hangar. Shipped by rail, it fills two ordinary coal cars.

First trial erection of the hangar was made on an eastern airport, a crew of 90 to 100 men being required for a quick job.



It, Too, Can 'Fly': The big pre-fabricated, arch-type airplane hangar shown here is one of the answers to the wartime need for a sizable building which can be transported by air and erected where needed within a few hours. It was developed by the Butler Manufacturing Co. of Kansas City, Mo. Uses for this type of structure appear to be almost unlimited.

Military Feeder Line Sets Record in Southwest Area

DISCLOSURE that Southwest Airways has been operating an extensive feeder air service on the West Coast for the Army Air Forces since November was permitted for the first time this week in an announcement approved by the Army.

Playing a key role in the war program, this is the nation's second feeder air service, and the first to be established since All American Aviation was franchised by the Civil Aeronautics Board to operate in six Eastern states two years ago. Southwest also is the first company to be awarded an AAF cargo contract, which was not flying previously under a CAB franchise.

Southwest's present feeder line mileage will be nearly doubled by further route expansions now being surveyed and expected to be flown within the next 60 days, it was disclosed.

Actual routes flown cannot be disclosed. However, the radio, operations, dispatching and maintenance headquarters are at San Bernardino, Cal. Daily flights connect most Air Force establishments in the areas served with central supply depots, with each other, and with key air, rail and sea shipping points.

Mileage has increased each month since the feeder line's inception, until it now flies approximately 50,000 miles a month on six daily flights, radiating in all directions from the San Bernardino and Sacramento Army Air Depot bases, Vice President James G. Ray told *American Aviation*.

To overcome the war-made shortage of cargo carriers, the company has converted Waco cabin planes into efficient freight haulers, Ray said, thus putting these pre-war aircraft built for civilian uses—for which the military had no need—squarely into the war effort.

Military Feeder Line: To convert Waco cabin planes into cargo carriers for its military feeder line serving West Coast Army installations, Southwest Airways extensively remodeled the pre-war passenger models. A special feature is the wide (33 by 35 inches) cargo door cut in the side of the fuselage.

Special large cargo doors were cut into the sides of the Waco cabin to facilitate quick loading. The area formerly occupied by the co-pilot is utilized for radio equipment and additional cargo space.

Ray pointed out that the AAF, by establishing Southwest's operation, is finding feeder services a practical and valuable supplement to its Air Transport Service trunk lines. He compared the success achieved with that reported by CAB for All American Aviation's feeder service in Eastern states.

The feeder, complementary to trunk line operations, completes the carriage by air of high priority shipments to their final destination, he pointed out.

Cargoes carried on Southwest's military feeder routes were reported to consist exclusively of Army materiel, 86% of which are high priority or APOC (airplane out of commission) shipments for combat and training units. Limited amounts of Army mail also are carried. In the initial six months of operation, more than 100,000,000 pound-miles have been flown without loss or damage to cargo.

It was pointed out that bombers and their crews frequently are grounded for days at a time when a single small part needing replacement must be shipped from a distant point. Southwest's feeder line reaches certain bases as much as two days faster than ground means of transportation.

This saving of time has been found particularly important on the West Coast —the jumping off place for planes bound for action in the Pacific war theatre. Daily bomber and pursuit patrols are flown over its vital production centers, and one-third of all Air Force pilots are trained in West Coast Flying Training Command schools. Southwest estimates that as many as 75 additional military planes of all types possibly are flown every day in the areas it serves, as a direct result of its feeder flights.

In addition to this feeder line, Southwest also operates four military pilot training schools—including Thunderbird Field, one of the nation's largest Army-contracted aircraft and engine overhaul depots, near Phoenix, Ariz.

Southwest has an application pending before the CAB, filed in April, 1942, for a franchise to give permanent feeder airline service to 295 Pacific Coast cities and towns on 11 routes emanating from Los Angeles, San Francisco, Portland and Seattle. The present military feeder line flies over much of the area applied for in that franchise petition.

Cargo Space: Protection is afforded pilots flying former Waco cabin plane models on Southwest Airways' military feeder line by this sturdy network of tubing. Note how area formerly occupied by co-pilot has been utilized for radio equipment and additional cargo space.

Wallgren Praises Aircraft Industry

A highly favorable report on the aircraft industry was made by Sen. Mon C. Wallgren (D., Wash.), chairman of the aviation subcommittee of the Truman Committee, on his return to Washington after a tour of West Coast aircraft and light metals plants to "gather last minute information" before making a committee report to the Senate on the nation's aviation program.

Wallgren and the Truman committee's counsel, Hugh Fulton, expressed particular satisfaction that the "hoarding of personnel" which was obvious in the early wartime development period of the aircraft companies has disappeared and said that several West Coast companies are now "producing more with less manpower."

The flow of materials is generally good, Wallgren reported, although a few of the plants visited had shortages in certain types of equipment.

Scheduling Group

(Continued from page 16)

American bomb of today is a heavyweight, and the 30% by which it outweighs last year's bomber is little compared to the poundage the 1944 model is expected to have, 60% greater than 1942.

Yet more weight is not a substitute for numbers. This year's schedules call for three times as many fighters and bombers as last year. With this rise in number of fighting planes there appears a steady dropping off in the ratio of trainers. In April 1942 some 40 of every hundred aircraft were training planes, while this April the figure was only 30 and will decline to 15 before the end of the year.

Wilson used production figures to express one note of urgency. The first quarter of 1943 shows only 20% of the production planned for the year. The industry is behind program and may get a little further behind before catching up. Against these two statements should be placed Wilson's avowal: "The year's production schedule is going to be met."

Jordanoff Aviation Incorporates

Jordanoff Aviation Corporation is the corporate title of the new company which will conduct the activities of Jordanoff Aviation Company, New York, N. Y., former operating name. As before, activities include "preparation of technical aviation manuals and textbooks used for instruction in airplane flight and maintenance." Officers are: Assen Jordanoff, president; George F. McLaughlin, vice president, Serena Stone, secretary and treasurer, and Fred L. Meagher, assistant treasurer.

Changes Probable in Navy Procurement

Procurement policies and procedures in the Navy Department's Bureau of Aeronautics may again be shuffled in an effort to arrive at the most efficient program possible, according to Navy sources.

First major reorganization in procurement methods began last December and although many officials believe it "greatly contributed to efficient and economic procurement," there are indications that other changes may be expected.

Major change under the December order was to turn over to the Bureau of Aeronautics, along with the other Bureaus, the direction of its own procurement. In conformance with the directive authorizing the chief of each technical bureau in the Navy to negotiate, prepare and execute contracts, the Bureau of Aeronautics set up the organization and procedure for procurement of necessary material and services.

Contracting officers were designated by Rear Admiral John S. McCain, Chief of the Bureau of Aeronautics, as follows: Rear Admiral Ralph E. Davison, Assistant Chief of the Bureau; Rear Admiral E. M. Pace, Jr., Director of the Material Division; Capt. A. C. Miles, Head of the Procurement Branch and Commander G. Norton, Alternate.

The Procurement Branch was also reorganized at that time to carry out its expanded functions. It is charged with procurement of all aircraft, aeronautical material and aeronautical equipment for the Navy, Marine Corps and Naval Reserve (and in some instances for the Army Air Forces) in accordance with programs promulgated by the chief of the bureau through the planning, training, flight, maintenance and material divisions or other branches of the bureau by procurement directives.

Handles Expansion

Provision for expansion of manufacturers' facilities to meet war requirements is made by the procurement branch through its plant facilities section. This section operates through the director of material and the chief of the bureau (with liaison through the War Production Board, the Defense Plant Corporation and other government agencies) to make contracts under government funds for acquisition of increased plant facilities and tools for qualified manufacturers.

In order that legal advice and services relating to procurement may be coordinated in each bureau and in the Navy Department there has been established a single legal division in each bureau. All letters of intent, contracts, amendments, extensions, change orders, or other contractual documents to be signed by the chief of the bureau of aeronautics or a contracting officer of the bureau shall be approved as to form and legality by or prepared under the supervision of the counsel or assistant counsel. Counsel for the Bureau of aeronautics is Stuart N. Scott.

To enable the procurement branch effectively to carry out its new responsibilities the following initial changes in organization were instituted. A contract section, headed by R. F. Lynch, with the assistance and under the supervision of the Counsel's office, prepares all NOa(s) letters of intent and contracts and carries on such contractual correspondence as is not within the cognizance of the appropriate technical section. It also carries on all service functions of the Requisitions Section, except the keeping of records. Contract Administration, directed by J. M. Torbett, carries on all functions with respect to NOs and NXs contracts, awards and projects orders. Records and Distributions maintains complete central records and contracts files for the Procurement Branch, under the direction of Lt. J. W. Getzendanner, U.S.N.R. It is responsible as to NOa(s) contracts for sending letters of intent and contracts to contractors for signature, for submitting letters of intent and contracts to contracting officers for signature and for preparing and distributing conforming copies of contractual documents. Costs, Statistics and Changes section is directed by E. J. Gorman.

All contracts for complete aircraft, engines, propellers, catapults, arresting devices, special training devices, training films and training literature and all experimental contracts are negotiated, prepared and executed by the Bureau.

Generally speaking, all procurement of replenishment items and other material which is not so highly technical or experimental in nature as to require complete negotiation and administration are turned over to the Aviation Supply Office in Philadelphia through the Aviation Supply Division of the Bureau of Supplies and Accounts in the form of procurement directives. The Aviation Supply Office may decide whether to handle the contract or avail itself of the services of the Navy Department's Bureau of Supplies and Accounts.

Plane Catches Car Thief

At Tucson, Ariz., Hershel Davis' automobile was stolen. He jumped into his private plane, soon spotted the car on a country road, landed nearby and telephoned police. Then he took off again and guided officers in a 20-mile chase until the car thief gave up, stopped and awaited arrest.

National Aircraft Council In New Washington Offices

The National Aircraft War Production Council, Inc., has established its permanent Washington offices in Suite 606, the American Building, 1317 F Street, N.W. The telephone number will be District 1322. Frank F. Russell, general manager, said there will be only a small staff.

Richard C. Palmer, Washington representative of the West Coast AWPC and assistant to Russell as secretary-treasurer of the National AWPC, will have offices in the same suite.

Guide to War Agencies

A *Handbook of Emergency War Agencies* has been prepared by the Office of War Information as a guide to Federal agencies whose present functions are devoted to war activities. It does not include the activities of the agencies established for other purposes, even though much of their work today has been integrated with the war program.

Mosquito is Fastest Plane in the World, de Havilland Claims

Claims that the de Havilland "Mosquito," now in active service on the war fronts, is the fastest and most versatile aircraft in the world are made by de Havilland Aircraft Co., Ltd., Toronto, Ont., in an announcement approved by the British Air Ministry and the Ministry of Aircraft Production.

"The Mosquito is faster than the Typhoon, Thunderbolt, Lightning or any other fighter or bomber in operation in the world," said the company. "The claim was thoroughly investigated before release was authorized by the Air Ministry."

The Mosquito Fighter has four 20 mm cannon and four .303 machine guns, all mounted in the fuselage nose. The Mosquito Bomber carries 2,000 pounds of bombs with a fuel range which is said to bring practically the whole of Germany within its reach.

Another speed claim is made for the Mosquito in that its design was not begun until after the war started and "it represents a world record of 22 months from drawing board into operations against the enemy."

Made of plywood, it is also said to be the most widely dispersed in manufacture of any warplane, utilizing hundreds of subcontractors. The company said it decided on wood construction because it could be gotten into production more quickly, would tap new material supplies, and would employ a fresh labor group.

400 Sub-Contractors

In Britain alone the de Havilland company said it has scores of dispersal depots and some 400 sub-contractors making components. "A similar situation prevails in Canada," it said, "where Mosquitoes are now beginning to roll out of the de Havilland plant." It is powered with two Rolls Royce Merlin engines made by the Packard Motor Car Co. The de Havilland full-feathering propellers are of the type created and produced by the Hamilton Stand Propeller Division of United Aircraft Corp. The de Havilland Co. also is producing these propellers in Australia. The company, prior to the war, had plants in operation in Britain, Canada, South Africa, India, Australia, New Zealand and South America which are still in production.

Describing features of the plane, the company said: "Dividing the fuselage shell longitudinally simplifies installation work. A compression-rubber type of undercarriage leg which can be made by an ordinary sub-contractor, eliminating high-precision tubing, pistons, valves, etc., has been successfully employed; it is in fact a development of the Moth undercarriage never previously used on so large an aircraft. A simple hydraulic chassis leg made from plain tube and eliminating specialized valve gear, etc., was developed from undercarriage retraction. The use of machined parts, forgings, dural extrusions, and light alloys generally was minimized; indeed forgings were practically eliminated by the use of high-strength castings. The stub-wing location of the radiators is good aerodynamically and permits almost any degree of cabin heating without extra weight."

Planes in the War News

American

New Cargo Plane: Termed a "front line dispatcher" by its designers, the new high-wing Cessna Loadmaster recently underwent factory flight tests in Kansas. Designed to operate from small fields, the plane will be able to dispatch supplies and men to actual battle areas, saving much of the tedious truck transport now necessary. See story on page 25.

Successful in Action: Consolidated Vultee's Vengeance dive bomber performed "highly successfully" in its initial war action, according to official field reports. Used against Jap installations in the Far East, the action began some time ago, but details were held up by censorship. The plane is made in Tennessee.

New Piper Trainer: Designed by 27-year-old Dave Long, this new Piper primary trainer is said by the company to be easy to maintain and keep in operation. Non-strategic materials were used wherever possible. See story on page 70.

British

The Typhoon: The RAF's Typhoon IB has been playing an active part in harassing the enemy during fighter sweeps over occupied countries, shooting up airfields, trains and ships. This striking photo, released by British Information Services, shows the four 20 mm. Hispano guns in the wings. Detailed performance data have not been released.

World's Fastest: The British now claim that their de Havilland Mosquito bomber is the fastest plane in the sky. Recent stories from London report that the plane has flown non-stop from Britain to Russia in the morning, returning in the afternoon. See story on page 21.

Tank Buster: This is the first official photo released of the RAF's Hurricane IID "tank buster" or "tin opener," as the pilots call them. Designed primarily for attacking armored vehicles, the plane carries a 40 mm. gun under each wing.

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Outward Bound!

A "Dauntless" takes off on AEROLS*

Nemesis of the Nipponese navy, the Douglas "Dauntless" is the world's hardest hitting dive bomber.

Because this outstanding plane is equipped with Aerols, it performs with effortless ease the exacting job of taking off or landing on an aircraft carrier.

The "Dauntless" is only one of many planes that are equipped with Aerols. For Aerols are used on every type and size of plane, functioning efficiently on every terrain and in every climate.

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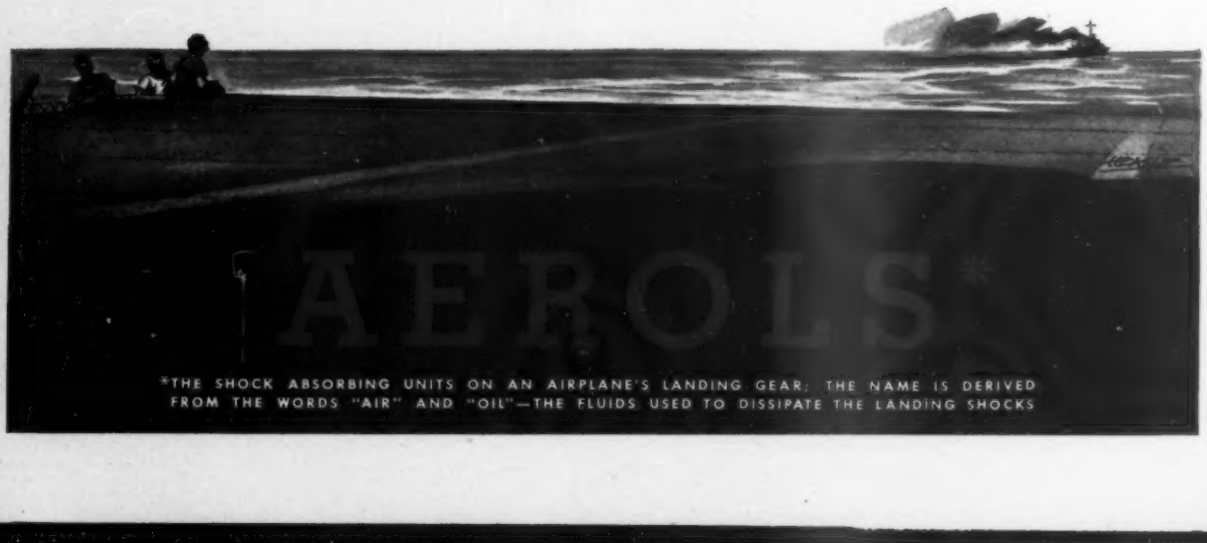


*THE SHOCK ABSORBING UNITS ON AN AIRPLANE'S LANDING GEAR; THE NAME IS DERIVED FROM THE WORDS "AIR" AND "OIL"—THE FLUIDS USED TO DISSIPATE THE LANDING SHOCKS

Two Thousand Axis Planes Destroyed in Africa in 6 Months

Two thousand enemy planes were destroyed during six months of the African campaign while the United States Army Air Forces and the Royal Air Force lost 770, the War Department has revealed. In the first 11 days of May alone, the score was 300 to 49, a ratio of 6 to 1.

The announcement said that beginning on May 7 "the enemy air arm literally danced to the Allies' tune," losing approximately 11 planes for every Allied plane brought down.

"The total average of enemy losses in ratio to losses of the Allies is reduced by the fact that for a considerable period in April enemy air opposition was negligible. There were just no planes to shoot down. Meanwhile, our planes continued bombing and strafing. Allied losses due to enemy anti-aircraft on these attacks brought the total ratio down," it added.

The day that Tunis and Bizerte were captured, Allied planes flew 2,748 sorties, an average of almost two a minute for the 24 hours.

Jap Air Chief Confesses His Flyers Are Inferior

Following a recent shakeup in the High Command of the Japanese Army air department disclosed by Radio Tokyo, a high Army official told the Japanese by radio that their air force was "inferior in technical knowledge" to Allied air units, according to the Office of War Information.

The spokesman was Lieut. Gen. Ashinari Uchida, director of the aeronautical affairs section of military information, who said:

"The advantage of war in the air is clearly written. The air forces form the strength of modern war. It is the strongest weapon of the fighting forces. Thus our enemy America has increased its airplane production and training of men for the air service . . .

"The Japanese air force is inferior in technical knowledge, but this does not mean that the Japanese can be overcome by the Americans. The facts of the greater East Asia war have splendidly refuted this."

On the other side of the picture, Secretary of War Henry L. Stimson recently said at a press conference: "The success of our airmen is one of the most heartening aspects of the war. Our pilots and equipment are amply superior to anything the Axis has put into combat."

Foster Heads 'Caterpillars'

The newly incorporated Caterpillar Club recently elected officers at a meeting in Trenton, N. J. Harold L. Foster, Columbia, S. C., a civilian flight instructor for the Army Air Forces at Hawthorne School of Aeronautics, Orangeburg, S. C., was named president, Marvin D. McDaniel, an engineer at Wright Field, Dayton, O., was elected vice president, and Verne E. Treat, Freehold, N. J., Army Air Forces flight instructor at Spartan School of Aeronautics, Tulsa, Okla., was elected treasurer. Richard Switlik, engineer with the Switlik Parachute Co., Trenton, N. J., was elected secretary.

AAF Officer Claims War Pilots Rarely Lie About Exploits

When a war pilot comes down from battle to report that he has destroyed an enemy aircraft, his word is itself sufficient to establish his claim, writes Col. James Saxon Childers of the United States Army Air Forces in his book, "War Eagles." "War Eagles" is the story of the American pilots in the Eagle Squadron of the RAF.

"Daily we read in the newspapers that our fighters 'destroyed' so many enemy aircraft," writes Childers. "The figures reported in the newspapers are based, almost entirely, on claims made by the pilots themselves immediately after they come down from battle.

"A pilot's word is itself sufficient to establish his claim, and no confirmation from any other source is necessary. If he said he shot down the plane, he is credited with the victory. An outsider might question the seeming looseness of such a system, might believe that frequently false claims are entered and credited. Actually, despite the natural keenness of each pilot to run up a big score, to become famous as an 'ace,' there are probably few wilful exaggerations of claims.

"In the first place, the pilots themselves are honorable fellows, and lying merely for glory is too cheap a trick for men who are daily gambling with death. In the second place, there are numerous forms of confirmation, and if a pilot repeatedly claimed victories without any of them being confirmed, his word in time would be questioned.

"Ordinarily a pilot does not fight alone. Ordinarily at least one other Allied plane is present, and the other pilot would witness the victory and confirm it. Then, too, there is the cine gun (automatic camera); usually it is operating, and while it does not necessarily show every battle, it would sooner or later play its negative part in tripping a pilot whose camera never showed any enemy plane within firing range.

"Finally, there are the intelligence officers who first receive the reports and then the experts at Fighter Command who evaluate them; they are wise and experienced men who would be quick to detect the almost inevitable flaw in any false claim."

Willow Run Exceeds Schedule, Says WMC

Current production schedules are being exceeded at the Ford Motor Company's Willow Run bomber plant, according to a statement issued last week by Edward L. Cushman, deputy district War Manpower Commission director at Detroit.

Altho disclosing no specific figures regarding output, Cushman said that manpower problems which delayed production earlier this year have been ironed out. His statement was the first recent report on Willow Run progress.

Employment at the plant is becoming stabilized, Cushman added, and hiring of new workers is keeping pace with production requirements.

Cessna Designs New 'Front Line' Cargo Steel-Plywood Ship

Designed as a "front line dispatcher," Cessna Aircraft Co., Wichita, Kan., has completed the newest plane in the American cargo field—the Cessna Loadmaster—which is expected to undergo Army Air Force flight tests soon. Preliminary factory tests have been completed.

Planned chiefly for military use, the Loadmaster is designed to carry on from the point where present transports lose utility—to carry men and supplies from main air fields and supply bases to actual battle areas. It is able to land and take off on small fields which the larger planes cannot use.

Cessna officials said the plane was designed expressly for these purposes and "does not represent the conversion of an existing military or commercial type to transport use." The statement declared, "Its construction is pointed to an extremely high pay-load per pound of airframe with speed, safety, and flexibility of use."

The fuselage is of welded steel tubing, the wings of plastic plywood, the entire structure fabric-covered. It is powered by two 600 hp Pratt & Whitney motors. Cessna engineers assert that this type of construction—a composite of steel tubing and plywood—is preferable to either all wood or all metal. "It not only conserves strategic metals; it is lighter than an all-plywood craft. Also, the difference in the weight between this and all-plywood construction is converted to additional pay-load capacity and speed."

They pointed out that the British Mosquito bomber in raids over Europe had demonstrated that shells can pass through wooden construction with no more disastrous results than in metal-formed aircraft, and the damage is usually quickly and inexpensively repaired.

Dwane and Dwight Wallace, executive heads of the company, said they will seek a contract as soon as Army tests are completed. Plants at Wichita and Hutchinson, they said, can be quickly set up for construction of the new cargo ship, with many of the smaller parts and assemblies being delegated to sub-contractors so that plant facilities can be largely devoted to fabrication and assembly.

Cessna specializes in aircraft of wood, tubular steel and fabric construction. It has turned out large numbers of bomber-pilot trainers (U. S. Army "Bobcats" and RCAF "Cranes") and in recent months has produced quantities of the UC-78, five-place Army personnel transport.

Plane Models Announced

To aid in plane identification study, Central Scientific Co., Chicago, Ill., has made available a new set of 78 model plastic airplanes. They are described as "exact duplicates" of actual planes on scale of one inch to six feet. They include 13 United States types, 21 British, 20 German, eight Japanese, 12 Italian and four Russian. Among the models are those of the Flying Fortress, Airacobra, Hurricane, Messerschmitt and others generally known.

This advertisement is one of a series which will appear in national magazines and newspapers this year as Consolidated's contribution toward a clearer public understanding of "aviation geography."

CONSOLIDATED VULTEE AIRCRAFT

No Spot on Earth is More Than 60 Hours From Your Local Airport

ALONG with all that's being said and written about the kind of world we'll be living in after the war, here's one fact you cannot ignore:

"No spot on earth today, however distant, is more than 60 hours' flying time from your local airport!"

MERCATOR PROJECTION

If a Liberator bomber, *built in San Diego, were crated and shipped the 9240 miles to Algiers by sea, it would arrive about a month later.*

POLAR AZIMUTHAL EQUIDISTANT PROJECTION

A Liberator *is capable of flying the 6210-mile airline route from San Diego to Algiers in about 31 hours' flying time.*

If you doubt it, ask the pilots and crews who are flying today's big, long-range planes, ferrying military personnel and supplies to our far-flung battle fronts. They'll tell you that the Atlantic is only 400 minutes wide—that Australia and San Francisco are a mere 35 hours' flying time apart—that you can hop from the U. S., touch Brazil's hump, and come down in Africa, all in 27 hours' flying time.

Or look at one of the new "aviation geography" maps, like those our children are studying in school. These maps make obsolete the maps we have always known. They show us the world as it really is. In this world, because of the plane, Main Street runs from your home town to London, Moscow, and Chungking. Nations and people we once thought remote are now merely hours and minutes away.

From El Paso, Texas, *to San Antonio, Texas, is 617 miles—an 18-hour trip by train.*

The Airline Route *from New York to London is 3460 miles—a 17-hour flight.*

Today, of course, the global skyways are reserved for war. But after the war, when freedom of the air returns, trade and travel by plane will become as much a part of everyday life as the use of cars, trucks, busses, railroads, and ocean liners. It is no dream of the future to count on global transportation in giant planes which fly almost with the speed of sound itself. Even today, such planes are being designed and are undergoing their wind-tunnel tests.

The Air Age has come, sooner than we thought. Already we have had to learn that wars must be won with the *aid* of the new Air-Age geography—not in spite of it. And we are beginning to see that the peace we win must be built on a clear understanding of this new global geography and how it can work *for* us.

AIR-AGE TIMETABLE

FROM	TO	AIRLINE MILES	HOURS
New York	Berlin	3968	20
Chicago	Singapore	8385	47
New York	Capetown	7801	39
San Francisco	Wellington	6758	34
Washington	Moscow	4803	24
London	Rome	887	4½
New York	London	3460	17
London	Berlin	574	3

The tens of thousands of men and women who make up the U.S. aircraft industry believe that America must be supreme in the air—to win the war today, to win the peace tomorrow.

They know that air power alone will not win the war. But they find it difficult to imagine a nation, which possesses the *finest* planes, and the *most* planes, going down to defeat.

• • •

Consolidated Vultee Aircraft Corporation

San Diego, Cal. • Vultee Field, Cal. • Fort Worth, Texas • New Orleans, La. • Nashville, Tenn. • Wayne, Mich. • Allentown, Pa. • Tucson, Ariz. • Elizabeth City, N. C. • Louisville, Ky. • Miami, Fla.

Member, Aircraft War Production Council

★ ★ ★ ★ ★ ★

QUICK FACTS FOR AIR-MINDED READERS

Consolidated Vultee builds the 4-engine, long-range Liberator bomber, the huge Coronado, (33-ton, 4-engine Navy patrol bomber), the Catalina, (famous twin-motored Navy patrol bomber), and the Liberator Express, (4-engine transport version of the Liberator bomber).

• • •

In addition to the "big ones," Consolidated Vultee also builds the VALIANT, (basic military training plane), the VENGEANCE, (dive bomber), the SENTINEL, (liaison observation plane known as the "Flying Jeep"), and the RELIANT, (navigational trainer).

• • •

". . . today we are flying as much lend-lease material into China as ever traversed the Burma Road, flying it over mountains 17,000 feet high, flying blind through sleet and snow." *From the President's address to Congress, Jan. 7, 1943.*

• • •

Major General "Jimmy" Doolittle was the first American aviator ever to take off, fly, and land "blind". He did it in 1929, piloting a Consolidated training plane known as the NY-2 Husky.

• • •

At the Consolidated Vultee plant in San Diego, there are testing laboratories in which the temperature is maintained at 80 degrees below zero.

• • •

One of Consolidated Vultee's test pilots has to his credit over 20,225 hours in the air. His total flying time equals more than 852 full days, or two and one third years of continuous flying time.

• • •

The U. S. Navy has just placed a $30,000,000 order for additional Catalina amphibian long-range patrol bombers which, when completed, will release for combat and convoy duty many U. S. Navy destroyers and other surface craft now engaged in patrol work.

LIBERATOR (4-engine bomber) — CORONADO, CATALINA, and P4Y (patrol bombers) — LIBERATOR EXPRESS (transport) — VALIANT (basic trainer) — VENGEANCE (dive bomber) — SENTINEL ("Flying Jeep") — RELIANT (navigational trainer)

School of Applied Tactics Gives AAF Realistic 'War'

By BARBARA B. C. MCNAMEE

THE air battles of 1944 are being fought and won at the Army Air Forces School of Applied Tactics. In a large reservation near Orlando, Fla., battles which took place in the South Pacific and European theaters are restaged and plans for future campaigns are mapped out and practiced.

A squadron of A-20s swoops down over a shrub-dotted valley strafing and simulating gas attacks. Although they fly so low that plane wings must be tipped to miss the trees, observers fail to detect any signs of life on the ground below. These same observers, conducted by jeep to the scene of the attack later that day, discover a whole camouflaged depot of the Air Service Force busily supplying the nearby air base with clean laundry, repaired shoes, fresh bread, and overhauled equipment.

At another base to the north, Air Corps engineers are busy laying a 6000-foot steel landing strip for bombers. Attacked daily by bombing raids they must constantly be prepared to drop their tools for tommy guns. This group recently completed the laying of a 4000-foot strip in seven days, clearing away brush and preparing the ground as well under the same conditions simulating combat zones.

The School of Applied Tactics is more than a school, it is actually a complete Air Force containing a Fighter Command, Bomber Command, Air Support Command and Air Service Command.

It contains 1200 acres of camouflaged classrooms, barracks, synthetic training devices and a "war theatre" 8000 square miles in area. There are 12 airdromes, and its bomber bases have 10,000 foot runways. From "enemy" bases come convoys and fleets to receive daily bombings, and raiding formations to be repelled day and night.

New Methods Tested

The school is also a laboratory to test new methods and equipment. Its projects and courses are continually being corrected by officers fresh from the actual combat theatres who serve as instructors and commanding officers for the students. Teamwork of squadrons, groups, commands and air forces is stressed as well as cooperation between men of a single crew or unit.

AAFSAT declares its mission is "to train cadres (the personnel framework around which all new combat groups are formed), to test and develop new techniques, and to speed new developments out of the combat theatres." Begun in March of this year, it was envisioned several years ago by men at the old Air Corps Tactical School, Maxwell Field, Ala. It has retained few of the traditions of the old school however except its motto: "Proficimus more irretanti", "we progress unhindered by custom."

The school is under the command of Brigadier General Hume Peabody, who was director of War Organization and Movement of Headquarters, Army Air Forces at Washington until November, 1942 when he went to Florida to organize the new Training Command. General Peabody has in turn commanded Bolling, Langley and Will Rogers Fields, has taught military aeronautics, military science and tactics and commanded branches of the Air Support Command, G-4 (supplies) and Army installations in Hawaii. The Tactical Developments Section, called the "test-tube of the Air Force" is headed by Brigadier General Gordon P. Seville. His job is to coordinate and originate new projects, developments, requirements and devices. He was sent to England as the Air Force observer of the Battle of Britain and in 1941 was at Mitchell Field. Previous to his assignment to SAT he was in charge of Air Defense at AAF Headquarters in Washington.

Assign Picked Men

Students assigned to AAFSAT are picked men from one of the Air Forces two training commands, the Second Air Force and the Third Air Force. For instance, the Commander of Second Bomber Command needs a new heavy bomber outfit to ship to a certain war theatre at a certain time.

He picks a cadre of 150 officers and enlisted men for group headquarters staff and four squadrons. To AAFSAT go a group commander, executive officer, adjutant, intelligence officer, photographer, interpreter and operations officers, weather, communications, medicine, materiel men, bombardiers and navigators as well as squadron officers for similar positions. Enlisted chiefs for armament and aircraft inspection. communications chiefs. operations, intelligence, supply men, radio operator-gunners, engineer-gunners, and armorer-gunners.

The AAFSAT course lasts one month. During the first days the whole cadre attends general lectures. Then administrative and service personnel are instructed by the Air Service Department; operations men are lectured on new tactics and techniques of bombing and combat work.

After the classroom work the cadre is moved to a field base where they live in tents approximating conditions of a newly-won airfield. They work with members of demonstration squads and groups headed by combat veterans. At the end of the month they return to their own air force as a skeleton to train and assemble the new group. These SAT-trained men are the leaders and instructors during the three months Operational Training stage preparatory for overseas combat duty.

AAFSAT considers its methods have three advantages: "they acquaint men with new equipment before the equipment is in full production. By the time their operational training is finished they are apt to be using this equipment exclusively. Men trained by SAT are prepared by latest information of what the enemy can and will do and also what they may reasonably expect from their coworkers. It is essential (the AAF has found) to eliminate as much of the element of surprise in combat duty as possible. There is, finally, a great boost to morale from having every one know his job thoroughly."

The Applied Tactics School is divided into four major sections although these divisions work closely together in line with the Command's policy of complete cooperation between all branches of the Army. The divisions are: Air Defense Unit, Bombardment Department, Air Support Department and Air Service Department. A breakdown of the activities and functions of these sections gives a clear picture of the purposes and accomplishments of AAFSAT.

Controlled by Radio

The Air Defense Unit is the Fighter Command with squadrons based at four fields scattered in the SAT theatre. The whole theatre is curtained against the enemy by super-secret radio-locater devices which keep tabs on all planes in the area. With radio control they are trained in controlled interception of enemy raids. The fighters are taught to work with searchlights against bomber attacks; one observer claims the coordination of detection instruments with searchlights is so perfect that a squadron of "enemy" bombers flying at 20,000 feet could not dodge the lights for a single second. The "enemy" planes are squadrons from the Bombardment Branch which are trying to outmaneuver the fighter planes and anti-aircraft as part of their own training practice.

Air Defense is staffed by the Army Air Forces, anti-aircraft artillerymen, the Signal Corps, AAF gunnery experts and WAACS. Instruction includes demonstrations of fighter squads in combat by former AVG pilots from the Southwest Pacific. This Unit is a carry-over from the Fighter Command, established at Orlando in the spring of 1942. Besides the cadres, instruction is given to controllers, day and night fighter pilots, specialist radiomen, anti-aircraft officers and maintenance men. An elaborate procedure for successful interception is drilled into all students.

The Bombardment Department hammers

Six Helicopters Are Ordered by Canada For Anti-Sub Work

Six helicopters have been ordered from the United States by the Canadian government for possible anti-submarine patrol work, according to an official announcement by the Canadian Wartime Information Board.

The announcement did not state with whom the order was placed, but it was presumed the helicopters sought are the models now being perfected for the U. S. Army by Igor Sikorsky.

The Royal Canadian Air Force also may employ helicopters to rescue airmen forced down in areas inaccessible to any other kind of conveyance, the announcement said.

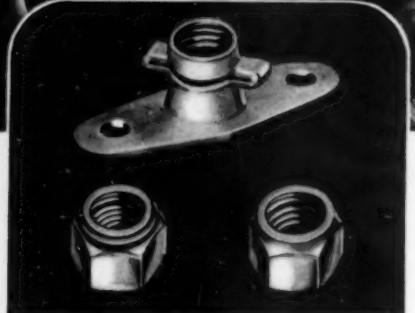
WRIGHT POWERS THE TONNAGE OF THE AIR

WATCHWORD from Tulagi to Tunis

DEEP in a concrete vault, the Naval Observatory's time machine ticks out a signal broadcast around the world. Our national coordination is keyed to this watchword of accuracy. For the physical coordination we depend on another precision time machine — the aircraft engine — which makes the most of time available. Wright engines, in larger, swifter carriers, are the watchword of progress in time-saving, tonnage air transport.

LIGHT
COMPACT
POWERFUL

Wright ENGINES



When the War is Over . . .

Boots Self-Locking Nuts will have even more widespread usefulness. Today, they are used in a variety of applications, including all types of AIRCRAFT, AUTO HEADLIGHTS, RADIO CONDENSERS, etc. Tomorrow, they will lengthen the life of your AUTOMOBILE, BICYCLE, WASHING MACHINE, VACUUM CLEANER, ELECTRIC REFRIGERATOR, and many other household appliances, as well as industrial, farm, and office machinery. Boots Nuts provide positive protection of *permanent* fastening wherever vibration, corrosion, or temperature are factors.

200 Rounds May Spell the Difference

Boots all-metal, self-locking nuts are lighter than ordinary nuts. Their use on heavy bombers saves more than sixty pounds of precious weight—a saving which can be turned into sixty pounds of fire-power, or about 200 rounds of .50 calibre machine gun ammunition. And those 200 rounds may easily mean the difference between "all our aircraft returned safely" and "one of our aircraft is missing."

All types of U. S. planes are protected with Boots Nuts. Not only are these nuts lighter, but they literally "outlast the plane." Furthermore Boots Nuts cut repair and maintenance time and have great reusability. They meet the exacting requirements of all government agencies.

"They Fly With Their Boots On—*Lighter!*"

BOOTS

Self-Locking Nuts For Application In All Industries

BOOTS AIRCRAFT NUT CORPORATION ★ GENERAL OFFICES, NEW CANAAN, CONNECTICUT

School of Applied Tactics

(Continued from page 28)

home precision bombing through thorough schooling in the strict policy of hitting the exact target with the specific bomb. They believe that more damage results from four accurate hits with 2000-pound bombs than one hit with an 8000-pound bomb. Especially they stress practice in exact hits on maneuvering vessels. For the bomber group of the cadre this principle occupies one out of every four lectures.

Bomber crews are instructed in the latest enemy tactics. For instance, the Germans have changed tactics from aiming at the five to seven region (speaking in the figure of a clock) of the nose area of a plane to the eleven to two area. Crews are shown a now-secret flight formation which has completely antidoted this attack. Great stress is also laid on the importance of operations, intelligence, communications, armament, navigation, flying control and weather.

Careful consideration is given to the proper type of bomb for each individual target. And the importance of bringing planes and crews home is stressed by showing new tactics which enable a crippled bomber to get away from a short-ranged enemy fighter.

Synthetic Devices Used

The latest synthetic devices are used for demonstrations. For fighter pilots, there is a custom-built heaven, complete with stars which can be adjusted to the correct positions for the night the pilot will make a raid. On screens are projected the exact terrains of his target areas with bombing devices and machines to record his synthetic hits and misses.

Students in the Bombardment Department work 12 to 18 hours daily in flight missions far out over the Gulf of Mexico or across SAT's theatre. These missions are often exact duplicates of raids which took place in some combat zone and are led by the men who participated in the real ones.

The Air Support Department is the jack-of-all-trades. It has three bases in Florida near large Infantry Camps, Amphibious Troop Training Centers and Paratrooper Schools to enable extensive practice in the cooperation of ground and air forces. Troops are trained in the split-second coordination which must exist between the commander of the ground forces and the air support squadron which softens up enemy resistance at the front and flanks. Tremendous importance is laid on a highly-developed network of communications between them.

Air Support cadres get instruction in the tactics of the ground elements they will assist and are taught almost-rifle accuracy in low-altitude bombing with light bombers as well as the techniques of dive-bombing.

Observation and photographic work play an equally important part in their course. Fighter pilots are taught how to streak enemy areas, photographing them with the fastest cameras and leaving so fast that anti-aircraft installations have not yet been warned of their presence. Procedures for evacuating the sick and wounded by air are demonstrated.

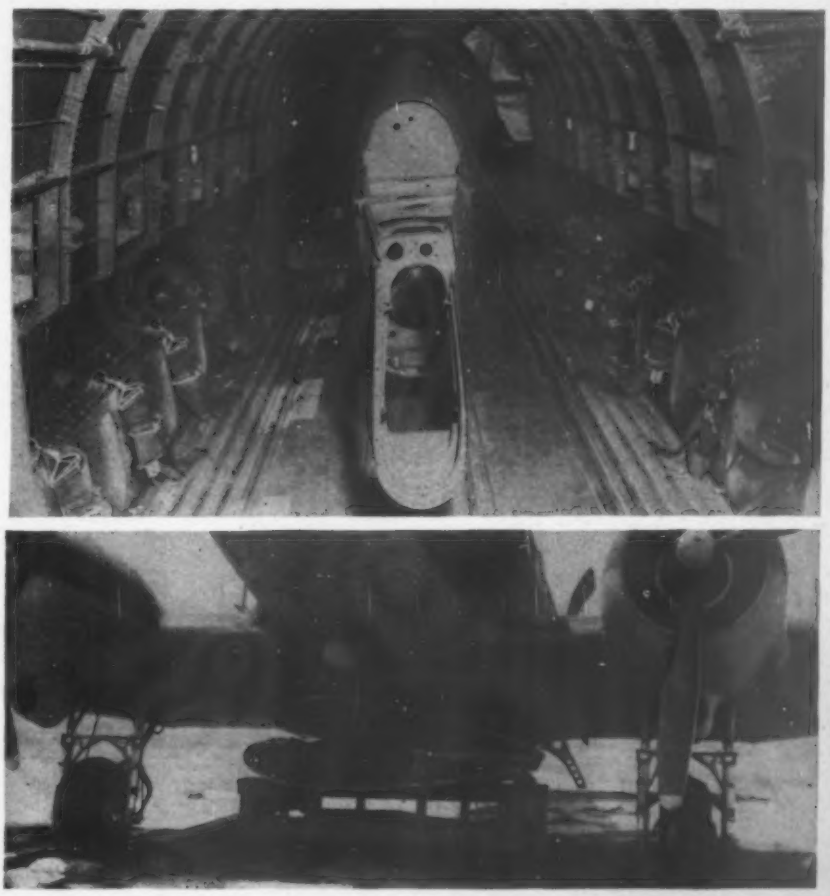
Troop-carrier squadrons cooperate with the airborne infantry outfits in developing the best tactics for landing troops by plane, glider and parachutes in enemy territory. They learn also ways in which to supply troops so landed.

The Air Service Department is responsible not only for expertly camouflaging itself against enemy attacks but also for supervising the requirements of the fighting forces for food, medicine, aircraft parts, gasoline, and ammunition. It instructs all administrative supply and service personnel in the other three units as well as key men in the air depots, supply squadrons, service groups, quartermaster, ordnance, engineering, signal and airdrome outfits. It has its own depot in Florida complete with all necessary services and supplies required by an Air Force in the field, even to a hospital.

It supplies the needs of nine air fields. Out front in the SAT theatre students are trained in tents and temporary barracks to do their work under battle conditions.

To add realism, marches and truck convoy movements are made with air protection and simulated attack. Engineers build airdromes in the theatre of operations. Trenches and underground command posts are prepared and then tested by surprise visits of paratroppers.

In the Air Room at Orlando last minute intelligence from all war theatres is reported. SAT observers are sent on tours of all these theatres to see how SAT-ized airmen fare. SAT is also used as a center for instructing men from one theatre in the tactics and methods proven most successful in another. Specialized demonstration crews go from SAT to the combat zones to demonstrate new bombsights, radio devices and other innovations. With men constantly going out to the field to instruct in new developments and with successful airmen returning from combat duty to pool their knowledge, SAT has a fluid, up-to-the-minute knowledge of the present and future operations of the Army Air Forces.



A Wounded Plane 'Flies': How air transportation comes to the rescue of damaged fighter planes in Africa is graphically shown in the above pictures. In the top photo, the fuselage of the British P-40 Warhawk has been lashed to the floor of a Douglas C-47 Skytrain for transportation to a repair depot. The wings, as shown below, are lashed to the belly of the transport.

Staff College to Stress Air Operations, Logistics of Combined Operations

Air operations and the logistics involved in combined operations will be stressed at the newly-formed Army-Navy Staff College which will officially open June 1. It will function as an agency of the Joint Chiefs of Staff, for the training of senior officers of the Army, Navy and Marine Corps in all phases of joint or coordinated operations involving land, sea and air.

One-third of the officers designated for this training by each of the armed services will be air officers, a War Department release states. The course will be of four months duration, divided into two phases. The carefully selected students will be for the most part in the rank of Lieutenant Colonel and Colonel in the Army and Marine Corps and the equivalent grades of commander and captain in the Navy.

In the first phase of the course, officers selected by the Navy will spend one month at the Command and General Staff School at Fort Leavenworth, Kansas, and one month at the Army Air Corps School of Applied Tactics at Orlando, Florida. Concurrently, officers of the Army Air Forces will spend one month at the Command and General Staff School and one month at the Naval War College, Newport, Rhode Island, and officers of the Army Ground Forces will study one month each at the School of Applied Tactics and the Naval War College.

The second half of the course, for all selected officers, will consist of two months of special studies, in accordance with a curriculum devised by the Joint Chiefs of Staff, administered by a faculty of officers at Georgetown University, Washington, D. C. Commandant and faculty have not yet been announced.

Thorn New Canadian Assn. Representative

Appointment of Walter F. Thorn, recently associated with the establishment of repair depots and training schools of the Commonwealth Air Training Plan, as general representative of the Air Industries and Transport Association of Canada, has been announced from Ottawa.

Thorn

Thorn's responsibilities, according to announcement, will be "to coordinate continuously the views of the (Association's) member companies, on all problems affecting their common interests; also, (to) discuss matters relating thereto with the proper officials of such Government departments as may be concerned and supervise generally the industry's public relations."

War Agencies Review

WPB

PROCEDURES FOR THOROUGHLY SCHEDULING DELIVERY OF BOTTLENECK COMPONENTS of planes, tanks and ships were announced by the Production Scheduling Division of the WPB Production Controls Bureau. Procedures are to go into effect June 1 on a voluntary basis. Purpose of the standardized procedures is to give each manufacturer in the contracting chain, the relation in time and quantity between the requirements for components which he has contracted to supply and the programs into which each component is to go. Claimant agencies will program their requirements; WPB will evaluate these requirements before they are put into process to see that they are within industry capacity and to see that they are uniformly distributed. Manufacturers are asked to review their production schedules and to make firm promises of delivery against the requirements that have been placed on them, and whenever a program threatens to be held back by a bottleneck item, WPB is to be notified at once for prompt readjustment or other action.

TWO NEW TESTS will be applied by WPB regional offices before approval is given to priority ratings assigned by officers of the Army, Navy or other Government agency for delivery of machine tools and capital equipment. These are: the item requested must be required urgently, and, no suitable second-hand equipment or subcontracting facilities are available. Checks are waived when deliveries of machine tools or capital equipment are valued at $500 or less.

PROCEDURES FOR PURCHASE of aluminum patterns under CMP are set forth in Direction No. 1 to CMP Regulation No. 5 superseding instructions in CMPL-196. When the purchaser of an aluminum pattern furnishes the pattern foundry with all the aluminum required to fill the order, in the form of obsolete or defective patterns, no reference rating or CMP allotment symbol, number or certification is required, and any foundry may remelt aluminum in the form of obsolete or defective patterns without prior authorization.

SUGGESTED FORMS for use by contractors (consumer of controlled materials) in extending allotments of controlled materials to their subcontractors have been provided by the CMP division. At the same time, forms for use by manufacturers in increasing or decreasing allotments of controlled materials to their subcontractors have been issued.

DIRECTION 5 to CMP Regulation No. 1, was amended to make it clear that the direction refers only to carbon or alloy steel bars instead of all carbon or alloy steels as previously stated.

AUTHORIZED governmental agencies and institutions in the Dominion of Canada are eligible for use of the provisions of CMP Regulation No. 5A, covering maintenance, repair and operating supplies.

PRIORITY ASSISTANCE for certain manufacturers who do not obtain production materials under CMP regulations has been provided by Priorities Regulation No. 11B. Such manufacturers may apply for priorities assistance on Form PD-870.

WMC

ENROLLMENT OF WOMEN HIGH SCHOOL GRADUATES in summer courses for engineering, science, management and war training in more than 1,000 towns and cities is expected to furnish war industry before the end of the year with at least 100,000 trained workers. In addition, of the approximately 2,000,000 additional women estimated to be needed for war work this year, probably 200,000 will be upgraded, according to ability, to supervisory or technical positions, Paul V. McNutt, WMC director, points out. Courses given to women of particular interest to aircraft companies will include: aircraft materials inspection; airplane drafting; elements of design; elements of engineering; accounting; elements of machine design; industrial drafting; inspection practices; office supervision; personnel administration; safety engineering; radio engineering aid; principles of radio; pre-electronic instructor training; elementary metallurgy; chemistry of metals; metallurgical techniques; metallographic laboratory practice; modern rubber technology and practice.

War Manpower Commission states that courses under its control can be worked out under various plans. Employers can request "in-service" courses, in which their employes may be trained on company time or after hours for upgrading; pre-employment courses may be offered; part-time courses which operate outside of working hours for employed persons may be organized; or full-time courses may meet during the daytime on a forty or more hours per week schedule. The United States Office of Education will send, upon request, lists of courses and institutions for campus or extension training.

ALARMED at the threat of widespread postwar unemployment among women, the Women's advisory Committee made the following declaration: "The Government and industry must not assume that all women can be treated as the reserve group during war only, nor should those who wish to stay in the labor market be accused of taking men's jobs. The right of the individual woman to work must be recognized and provided for, just as the right of the individual man to work."

Dept. of Labor

EXPERT ADVICE ON HOW HEAVY WEIGHTS should be handled to reduce war production work injuries will be contained in the recommendations of a committee of safety experts, plant physicians and personnel officers to be issued shortly by the United States Department of Labor. The technical advisory committee, which guided the preparation of the booklet, "A Guide to the Prevention of Weight-Lifting Injuries," was made up of representatives of the Ford Motor Co., General Motors Corporation, Westinghouse Manufacturing and Electric Co., Ohio Crankshaft Co., the U. S. Public Health Service and the U. S. Department of Labor.

INCREASED INDUSTRIAL OUTPUT may be obtained by improved seating facilities for workers, according to a study made by the U. S. Department of Labor. It recommends management responsibility and worker education in the field of posture. In the fight against industrial fatigue, the study says one plant found that provision of special stand-sit seats in a metal-polishing unit increased production approximately 32%. Investigations proved that muscular ability increased by 6 to 15% when workers were permitted to sit and stand alternately.

OWI

MAXIMUM PRODUCTION HAS BEEN OBTAINED by some plants by using Sundays for bottleneck-breaking, repair and maintenance, according to a statement of the War and Navy Departments, the Maritime Commission, War Manpower Commission, War Production Board and the Departments of Commerce and Labor. "The continued policy of Government agencies dealing with production is to encourage that type of daily and weekly shift schedules which will secure the most effective utilization of materials and labor supply. By allocating Sunday for repair, maintenance and bottleneck breaking production has not suffered since better attendance, better morale, and greater employe effectiveness have resulted from having regularly the customary day of rest. On the other hand, many plants through experience, have been able to secure more productive efficiency by operating the plant a full 7-day week and still affording a day of rest to workers through a variety of methods."

CONRAD CAMPBELL.

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THE AIRLINES OF THE UNITED STATES

AIR TRANSPORT GETS THERE FIRST... PASSENGERS... MAIL... AIR EXPRESS

Lines Oppose Postwar Govt. Participation

Joint Answer to CAB Urges Continuation Of Private Initiative

VIGOROUS objection to any form of government participation in the management or ownership of American flag air carriers and to the creation of international air tranport operations conducted in whole or in part through internationally owned and controlled government corporations has been voiced to the Civil Aeronautics Board by 17 domestic airlines and American Export Airlines.

In a joint answer to 17 important questions on postwar aviation propounded by CAB, the airlines emphasized that "past performance has demonstrated that private management and initiative are capable of successfully upholding the role of the United States in postwar international air transportation."

In addition to American Export, the answers were signed by Eastern Air Lines, Chicago & Southern, American, National, Northwest, Delta, Inland, Western, Pennsylvania-Central, Continental, All American, TWA, Northeast, Braniff, Colonial, Mid-Continent and United.

The airlines urged the Board, which released the questions on May 5 as part of its important study of postwar aviation, to work out immediately a reciprocal exchange with other countries of the general right of innocent flight (non-military), together with the right to land for refueling and other technical purposes, in international air transport.

"This right," said the airlines in a statement accompanying the answers, "the right of innocent transit, is basic to the development of international air transportation and leaves open for later negotiation and agreement the question of the right to engage in commerce by air."

Seek Universal Policy

On the all-important question of whether U. S. carriers should be permitted to engage in both domestic and international air transport, the airlines said that although this question must be decided in terms of individual air carriers on the basis of public convenience and necessity, "the policy should be definitely established that any United States air carrier may be permitted to engage both in domestic and foreign air transportation."

The airlines' answers are expected to play an important part in the CAB's study. The fact that the answers were agreed upon by the entire domestic industry and by one international carrier will, it is felt, give them added weight.

Complete text of CAB's questions and the airlines' answers follows:

1. What international air routes are of major commercial importance for postwar United States operations?

Answer: What air routes are of major importance after the war will depend to a large extent upon the terms of the peace treaty and other considerations that cannot now be determined. Clearly the agencies of the Federal Government concerned with foreign trade and commerce are in an advantageous position to determine which routes will be of major commercial importance immediately after the war. Air travel between points will of itself create commercial ties to nations and places not now of significance. Furthermore, technological developments in flying will require a constant readjustment of such routes even assuming that the commercial centers remain the same. It is obvious and essential that the United States should have the shortest possible air routes to all countries of recognized or potential commercial importance.

2. Should there be a reciprocal exchange with other countries of general rights of air passage, together with the right to land for refueling and other technical purposes, in international air transport?

Answer: Yes. A clear distinction must be maintained at all times between the right of innocent flight as distinguished from the right to engage in commerce by air.

3. In the event rights of transit through United States territory of the character covered by Question No. 2 are granted to foreign carriers, should their operations be restricted to a designated small number of airports and airways, or be permitted to use any airport or airway available for general civil use?

Security Cited

Answer: Such operations of foreign carriers should not be restricted to a designated small number of airports and airways nor be wholly unlimited. Rather, they should be determined in each particular case in the light of operational requirements and military security.

4. Should those foreign operations authorized to pick up and discharge international traffic within United States territory be permitted to do so only at a few points on or near our coast or borders, or, on the other hand, be permitted to do so at points well into the interior?

Answer: Wherever adequate domestic service exists, foreign operations should not be permitted to pick up or discharge international traffic except at recognized ports of entry near our coast or borders. Cabotage rights should not be sought by the United States if on a reciprocal basis.

5. Would international commercial aviation be assisted appreciably by the establishment of free zones in states located on important international routes wherein cargo could be unloaded and stored, repair facilities maintained, staff members housed, and the like?

Answer: Yes, insofar as such free zones pertain to air transportation and can be established on a basis not inconsistent with national security. Other functions of a free zone will require further study. It is particularly important that many airports and bases throughout the world which have been financed in whole or in part with United States funds be made available to American flag air carriers on a non-exclusive basis. It is felt that such zones are necessary to implement the concept of the right of innocent flight discussed under Question No. 2 above and may aid in meeting post-war military policing problems.

6. Assuming that many foreign governments will be willing to enter into agreements with respect to commercial air rights only on some basis of reciprocity, what type of agreement would seem most likely to meet the standard of reciprocity without retarding the development of air transportation?

Answer: Such agreements should place no limit upon the number of schedules or the number of carriers operating between points, nor should paralleling necessarily be disapproved. As far as the United States is concerned, it is felt the nature of our operations can best be determined by considerations of the public interest. The United States should have no particular reason or desire to control the vehicle through which foreign countries choose to perform air transport services. It is implicit from the foregoing that United States air carriers believe that given adequate government support they are capable of maintaining this country's competitive position.

7. What operating and commercial rights, not specified in response to other questions, will be needed for international airline operations?

Nations May Differ

Answer: The operating and commercial rights required will differ in each country and past experience may not necessarily be a guide to the future. The United States should seek all operating and commercial rights necessary to trade on equal basis with other countries, including the right of American flag carriers to maintain communication services, meteorological services, keep American personnel stationed in the territory of other states, and the like. It is recognized that some degree of international cooperation, particularly in the field of communications, will be necessary and inevitable.

8. Should United States air carriers negotiate directly with foreign governments to secure international air transport operating rights, and, if so, to what extent and under what conditions?

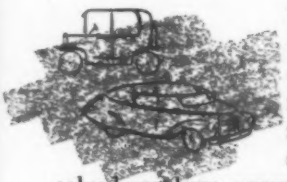
Answer: The United States Government should and must conduct many negotiations with foreign governments for the purpose of securing international air

(Turn to page 38)

Conference Postponed

The discussions between the United States and Great Britain on postwar international air transportation, originally scheduled for June, have been postponed to September at the request of the British, it has been learned. According to meager information available, the British have not completed discussions with the Dominions. It is still not clear who asked for the discussions originally, the U. S. or the British, but evidently when they are held later this year the British will speak for the entire Empire.

What Nylon Can Mean To Airplane Tire Construction



Nylon, in some important ways, is as far ahead of cotton or rayon cord for use in airplane tires as fluid drive is ahead of the old-time foot pedal gear shift. Yet there are still unanswered questions, unsolved problems, unexplored horizons.

In 1939, DuPont announced Nylon to the public. "U.S." research men wondered—wondered since Nylon in stockings was stronger, sheerer, more resistant to runs, why it might not also be stronger, lighter, more efficient for tire cord. It was natural for "U.S." to undertake this problem because "U.S." laboratories had pioneered and developed rayon for tires and "U.S." factories had produced rayon tires for automobiles and trucks. With this background of experience, a practical Nylon construction was soon developed.

Truck tires with Nylon bodies were put into high-speed service over scorching highways. In every test these Nylon-built

tires proved that they could outperform the best tires built of cotton or rayon cord. Even before Pearl Harbor, "U.S." tires made with Nylon cord were tested on military aircraft. The results confirmed what had already been found in the laboratory and on the road. Still the properties of Nylon tire cord are not fully understood. United States Rubber Company research men are testing, experimenting, searching for answers that lie ahead.

But whether made from Nylon, from rayon, from cotton cords or from spider-web-thin steel, from synthetic rubber, or from the natural milk of the rubber tree, "U.S." will build better and better tires—as its technical men open up new methods and new materials to the America of tomorrow.

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U. S. Must Furnish Postwar Transports to Allies - Trippe

Equitable Basis for Competition Will be Needed, He Says

EXPRESSING publicly for the first time his ideas on postwar international aviation, Juan Trippe, president of Pan American Airways, stated on May 19 that in order to establish an equitable basis for competition the United States must make ocean transport planes available after the war not only to Great Britain but to the national airlines of each of the United Nations.

Trippe spoke at a dinner of the National Institute of Social Sciences, at which he received the Institute's Gold Medal in recognition of his "distinguished achievement in the field of aviation."

Trippe

(Trippe last fortnight also received the Captain Robert M. Dollar Memorial Award for his "outstanding championing of and service to American foreign trade").

In discussing where the planes are to come from for postwar international aviation, Trippe touched upon a subject that has been argued back and forth on both sides of the Atlantic.

The PAA president pointed out that in the joint war effort the British are concentrating on the building of fighter planes and other military types while the U. S. is building military types and transports.

"It has been stated that at the peace America will possess most of the planes that could be used in international air transport—that while both countries have served a war role, unmindful of future commercial advantages, Great Britain, in so doing, has suffered a postwar handicap," Trippe said.

"We all share the healthy American aspiration to be the winner of a race or a ball game or an international business competition. But fair is fair. If you want to win a baseball game, you try to outhit the other fellow, but you don't take away his bat.

"British Overseas Airways already has in essential war service three of Pan American's four-engine ocean Clippers. But these, as well as their sister ships, still in our own service, will be obsolete. For these compelling reasons I urge that when the fighting stops British Overseas Airways be permitted to secure—on equitable terms—all the ocean transport planes that are needed to restore the balance for fair competition. In fact, I urge that this principle shall have application in our dealings with the national airlines representing each of the United Nations . . .

"The law of life is not so much the survival of the fittest as the survival of those *fittest to cooperate*. In the world scheme of things, only those who cooperate will survive."

'Solidify the Peace'

When the war is won, Trippe stated "we will still have a real job to solidify the peace.

"As we carry men, mail and merchandise—ideas and ideals—science, medicine, culture and the arts—we will again be carrying cargoes of good will. I hope we will never carry cargoes of imperialism and hate. We Americans must see that they are not sent. We must remember that air transport is the vehicle, not the cargo. It can serve good ends or bad.

"North and South America relied on our air transport to implement the Good Neighbor policy. But the Axis, by the same token, counted on their international airlines, Lufthansa, to help dominate and crush the world.

"Air power can further anarchy or peace. It can destroy or build. It can be a lethal weapon or a life-giving tool—sword or ploughshare, Frankenstein or Alladin's lamp, Stuka bomber or Clipper. And as surely as we meet here tonight it can enslave the common man—or it can free him.

"Let me suggest, for your consideration, some ways in which air transport can be on the right side and do the right thing—how it can be made more completely the instrument of the common man.

"The first way is simple. It is to assume our natural responsibility as a private enterprise and to offer the most value to the most people. That isn't as obvious as it sounds. Because air transport does have the choice—the very clear choice—of becoming a luxury service to carry the well-to-do at high prices—or to carry the average man at what he can afford to pay. Pan American has chosen the latter course.

Giant Clippers

"The decision was made before Pearl Harbor. And over a year ago Pan American had started its program for the construction of 50 giant clippers, each capable of carrying 153 passengers from New York to London in 10 hours at a fare of a hundred dollars. These same Clippers operating over other Pan American Airways' routes would provide a service of 24 hours to Australia or China, 22 hours to Buenos Aires—all at comparably low fares.

"In future years we will do even better. The war has been a bitter laboratory for air transport, but a laboratory nonetheless. Its benefits should be available to all the people in the peace to come.

"Nor will these benefits be limited to low-cost travel and fast mail. There will be more instances of the flying of serums and doctors to epidemic areas. There will be food to fight famine. Air transport will bring greater prosperity to all the world—in tourist expenditures abroad—by stepping up the tempo of trade and commerce.

"And surely the great other national air transport systems of the allies—British Overseas Airways, Russia's great 'Glavaviaprom,' Air France, Royal Dutch Airlines, Trans-Canada and the rest—as well as Pan American, will wish to make sure that this new prosperity benefits the people—all the people of all the world.

"There are the tangible benefits we may hope for. The intangible may be more precious still.

"Understanding between nations should grow as more of us meet each other face to face and talk things over.

"If America's early railroads had run North and South instead of East and West, there would probably have been no Civil War between the States. We all recall people against whom we were prejudiced by reputation, but whom we have come to like when we know them. In my opinion the two old adages should be transposed to read 'Absence breeds contempt,' and 'Familiarity makes the heart grow fonder.' Our country can foster greater international good will by providing frequent and cheap communications with the countries of the world. . . .

"It is obvious, of course, that the great national air transport monopolies, which represent each of the principal foreign nations will continue to compete with each other and with us. But it is vital to establish an equitable basis for such competition. Friendship will result from fair play . . ."

Knollys Heads BOAC

Viscount Knollys has resigned as Governor of Bermuda to become chairman of British Overseas Airways Corp., according to announcement last fortnight in the House of Commons by Sir Archibald Sinclair, Air Minister.

Skepticism regarding the appointment was reflected in Commons when Sinclair was asked, "if the new chairman has any qualifications for the post, and if any inquiries have been made as to his reputation and suitability for it?" Sinclair replied that he had the utmost confidence "in his loyalty, zeal and energy for the discharge of his duties," adding that Knollys had "much experience in the conduct of business affairs."

Meanwhile, Colin Bednall, air correspondent of the London *Daily Mail*, reported that "assurances have been given on high authority that the Government now intends boldly and frankly to set about creation of a merchant air service worthy of the British Empire."

Indication that the British were preparing to meet U. S. competition was seen in Bednall's statement that "the whole world will be girdled with British airlines operating British aircraft between British bases. It is promised that no effort will be spared to ensure that the whole British Commonwealth of Nations share in the airlines."

Experienced Leaders Urged for U. S. Postwar Aviation

'Know How' Must Replace 'Dreamers', Parrish Asserts

AMERICA'S postwar international aviation will need intelligent and experienced "know how" instead of leadership furnished by "Washington somnambulists and dreamers," Wayne W. Parrish, editor and publisher of *American Aviation Daily* and *American Aviation* Magazine, told the Members' Council of the New Orleans Association of Commerce on May 13.

There is considerable fear, he said, that the interdepartmental committee, headed by Assistant Secretary of State Adolph Berle, is hardly the proper instrument for representing the aviation and the public interest in our international policy.

"There is too much talk about government ownership or participation or control of international airlines," Parrish said. "There is too much secrecy surrounding the activities of this interdepartmental committee. There is too much secrecy surrounding a forthcoming meeting of the British and the U. S. on foreign air policy . . .

"Far too many years has aviation in this country been retarded by unimaginative job holders. We have expended too many lives through unpreparedness and red tape to risk repeating the same blunders."

Asserting that "all we have in aviation today has come through private initiative," Parrish emphasized that "international air commerce under the American flag is a job for private enterprise." He described talk of government air mail subsidy as "pure baloney, for the airlines are turning back into the Post Office millions of dollars more from air mail than they receive for carrying it. Private enterprise wants the opportunities to carry the American flag into foreign air commerce without subsidies.

Intelligent Handling

"What we want from government is intelligent handling of those problems requiring national guidance. Such intelligent guidance cannot come from bureaucrats steeped in red tape, from New Deal intelligentsia, dreamers and those who are grasping for power. Nor can it come from those wanting to put government into business. The government must draw intelligent leadership from the experience and background of aviation. Aviation asks only sensible regulation in the best interests of the nation and public.

"We are at the dawning of a great air age of enormous potentialities, the airplane is an instrument for drawing the nations of the world closer in peaceful pursuits of commerce. America wants no more nor less than she justly deserves. But let us provide the proper intelligent leadership in our collaboration with the nations of the world."

Every nation, Parrish pointed out, is jealous of its own airspace above its country. "We wouldn't think of permitting foreign planes to fly at will around the U. S., especially in the conduct of commercial airline operations. Neither can we expect other nations to permit commercial American planes to roam at will in their airspace, at least without reciprocal agreements . . .

Across Arctic

"As we look at the globe it is easy to see how the world has developed largely in the northern hemisphere. And in this northern hemisphere aviation finds its shortest route across the Arctic. And the Arctic, whether we like it or not, is controlled by two tollgate keepers, namely Russia and Great Britain. . . .

"If we were in Russia's position, possessing that great expansive area around much of the top of the world, would we want to turn this asset over to the rest of the world? Airspace is as valuable an asset as gold, and in the postwar peace table trading will be used as such. If we want to fly over Russia on our way to China and India, Russia will naturally demand similar franchises from us. And what of Great Britain, who, with her Dominions and hundreds of island possessions over the globe, has most of the chips in the world air game? It doesn't take long to realize that some hard and tough thinking is in order.

Praises Pogue

"The soundest and most practical suggestion to date has come from Mr. L. Welch Pogue, chairman of the Civil Aeronautics Board, who believes the first step in giving aviation a world charter is to obtain agreement from as many nations as possible for what he terms the right of commercial air transit. By agreeing to this right it would mean that the planes of all signifying countries could fly in transit over the other countries en route to their destinations, and could land for refueling, for making repairs, or for refuge from bad weather. Such a right would not include the right to discharge or load passengers or cargo. This is the most common sense method of getting a fundamental principle established, but it means that the commercial airliners of other nations could fly over the U. S. by certain agreed-upon routes and stop to refuel. But if we expect to expand aviation such reciprocation is to be expected, for it is nothing more nor less than the privileges granted to steamships at our ports.

"The next step would be the granting of commercial outlets, which is the right to take on and discharge passengers and cargo. Many small countries who do not have their own airlines usually welcome the commercial services of other lands, but it seems clear that the services to major countries must be on a reciprocal basis. In this country we are novices in the international field, but we cannot afford to remain novices any longer and we must not be afraid of foreign competition on an equitable reciprocal basis . . ."

Federal Ownership of Airlines Opposed by Bailey, Brewster

Unalterable opposition to any plan for government ownership of U. S. foreign airline operations was expressed by two Senators, one Republican and one Democrat, interviewed by *American Aviation* during the fortnight: Josiah Bailey (D., N. C.) and Ralph O. Brewster (R., Me.).

Bailey, strategically situated as chairman of the Commerce Committee to wield great influence on postwar airline plans, proclaimed that as an advocate of free enterprise he believes in government regulation, but not ownership.

"We started this country out on private enterprise", he remarked. "It has been developed by the aggressiveness of private enterprise, we could not have fought this war without private enterprise, and we should keep on with a system that is running well—although, I know that public capital seems to be the thing right now."

The foreign field, the Senator believes, would be covered best for the U. S. by one commercial airline, that more are likely to bring chaos, diminish the success of U. S. foreign transport operations.

Plans for government ownership have met favor in high places, Bailey admitted, but dismissed them with the reminder:

"Congress is going to have the decision to make . . . when that time comes, we will let advocates of government ownership speak, but we will also listen to others."

Even more emphatic was Brewster's stand against government ownership of our postwar foreign air transport system.

Likewise acknowledging that advocates of government ownership have made remarkable headway, Brewster reported: ". . . 'insidious influences' recently want us to have a government operated airline . . . this is the plan under the so-called new World Economic Order.

"I am a thorough believer in the development of private commercial airlines —not because I am an advocate of the capitalistic system, but because I believe commercial control of our network of postwar airlines will be able to get rights to foreign countries that a government-owned transport association could not," he explained. "A government owned transport association could not gain one right on foreign soil, without granting reciprocal rights (meaning that we might have German and Italian planes flying all over our country), but a commercial airline could. Our private foreign air system when this war broke out had rights to 60 countries, without any reciprocal rights for operation in this country."

Looking to the peacetime future, Brewster expressed dissatisfaction with the situation which has developed in Africa.

"Our commercial traffic has been completely eliminated in Africa," he observed, explaining:

"There was an agreement with Great Britain to turn operations over to the military, but British commercial lines are still operating there—and with American equipment furnished under lend-lease . . . This situation is 'irritating'—to put it mildly."

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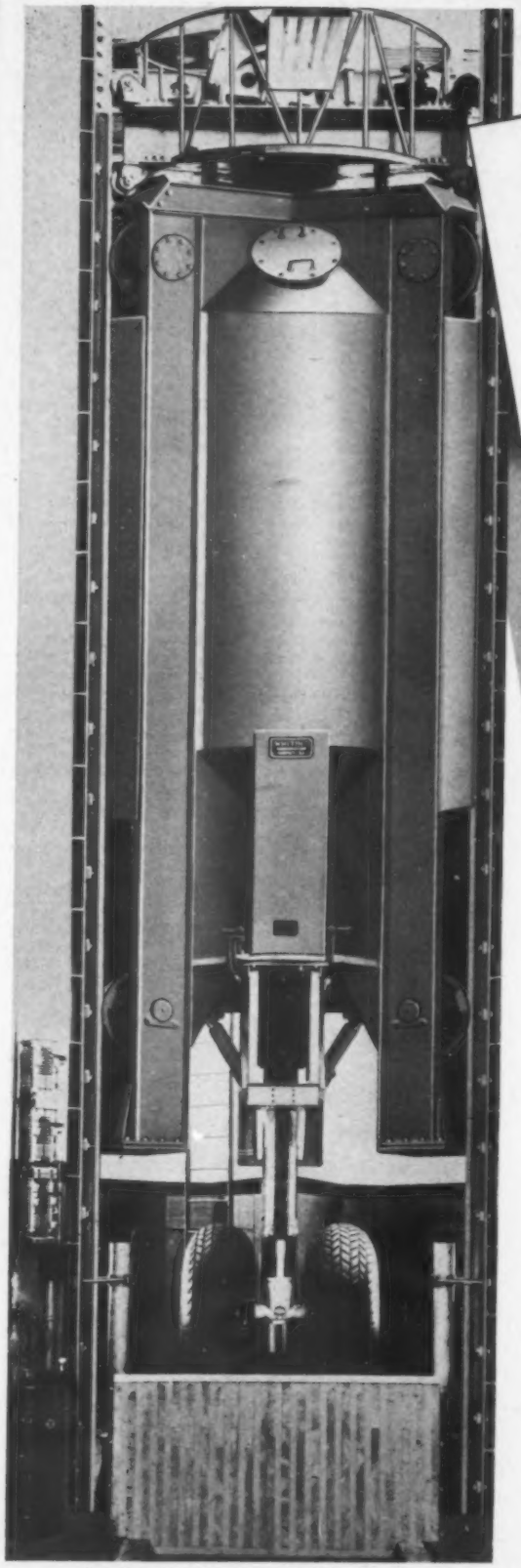

Landing gear drop tester built for Bendix by Whiting Aviation Division

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May 4, 1943

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Gentlemen:

The landing gear drop tester which you recently erected in our plant has given most satisfactory service.

We appreciate your working with us on this project; it has been a good demonstration of your Collateral Engineering Service.

Yours sincerely,

BENDIX PRODUCTS DIVISION

John R. Cautley

John R. Cautley, Manager
Aircraft Landing Gear Dept.

JRC:lh

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Govt. Participation Opposed

(Continued from page 32)

transport operating rights. Private companies should conclude such basic negotiations only with the consent and knowledge of the government. Naturally, once the basic rights are secured, negotiation for incidental collateral rights may be left to private management.

9. To what extent and under what conditions should United States air carriers engage in both domestic and international air transportation?

Answer: This question must be decided in terms of individual air carriers on the basis of public convenience and necessity and consistent with the policies and standards established by the Civil Aeronautics Act. Subject to these qualifications, the policy should be definitely established that any United States air carrier may be permitted to engage both in domestic and foreign air transportation.

One Company?

10. Should the United States develop foreign air transportation mainly through one company or should there be regional companies (perhaps with competition in those regions where traffic warrants) and, if so, what should the regions be?

Answer: No rule or policy should be predetermined that foreign air transportation be developed through one company, through regional companies, or through any other chosen instrumentality. Foreign air transportation should be developed upon the basis of public convenience and necessity and consistent with the policies and standards established by the Civil Aeronautics Act.

11. If the foreign air commerce of the United States is mainly carried on through a single company or through regional monopolies, to what extent, if any, should such a company or companies be governmentally owned, financed, managed, or otherwise regulated?

Answer: Government participation in the ownership or management of American flag air carriers is undesirable regardless of whether one company, regional companies or other special instrumentalities are chosen to develop international air transport. Regulation should generally be in accordance with principles established by the Civil Aeronautics Act.

12. Should international air transport operations be conducted in whole or in part through internationally owned and controlled government corporations, and, if so, to what extent?

Answer: No.

13. Should a permanent international organization be established to (1) formulate international safety standards with respect to flight rules, traffic control, operational procedures, navigation facilities, certification of aircraft airworthiness, or certification of airman competency; (2) control economic matters such as passenger and cargo rates or methods of competition; or (3) establish and operate international airways, international airports, and aids to international air navigation? If such an organization is established, how should it be constituted?

14. If an international organization of the kind referred to in Question No. 13 is not established: (1) Should conditions be imposed on foreign airmen with respect to compliance with United States safety standards? (2) should conditions be imposed on foreign aircraft with respect to United States airworthiness requirements? and (3) should controls be exercised by the United States over the passenger and cargo rates, competitive practices, and other economic phases of operations of foreign carriers?

Private Understandings

Answer to 13 and 14: It is clear that some uniform "rules of the road" for the airways must from time to time be established through international agreement. To the fullest extent possible, however, air carriers should be permitted to deal with the problems discussed under this question through private understandings reached among themselves subject to appropriate Government supervision. Many of the problems suggested by this question will not be of immediate pressing concern after the war and solutions should be permitted to develop gradually in the light of existing circumstances.

15. What disposition should be made of surplus aircraft owned by the government, suitable or convertible for civil use, and through what governmental machinery?

Answer: Surplus military transport aircraft, capable of conversion for temporary peacetime use, should not be made available upon the cessation of hostilities for unrestricted sale or use which might adversely affect the development by the United States of its own domestic and foreign air transportation and national security. This matter admittedly requires careful study.

16. In general, what steps should be taken by government and the industry to facilitate the conversion of aircraft manufacturing to a peace-time basis when the time comes?

Answer: Subject always to the demands of the war effort and its efficient and successful prosecution, aircraft manufacturers should be authorized to prepare all plans and fabricate parts for the conversion of aircraft and to prepare plans for future civil and commercial aircraft. In this manner, and at the strategic time in relation to military requirements, aircraft manufacturers can and should commence actual construction thereby effecting a more gradual and efficient conversion of their plants from a wartime to a peacetime production basis.

17. What other problems and recommendations in relation to international air transportation should receive the active consideration of this government?

Answer: It is contemplated that airlines may individually submit additional points for consideration as suggested by this question.

Plan Now for Postwar Airports, Flight Strips 7 Congressmen Urge

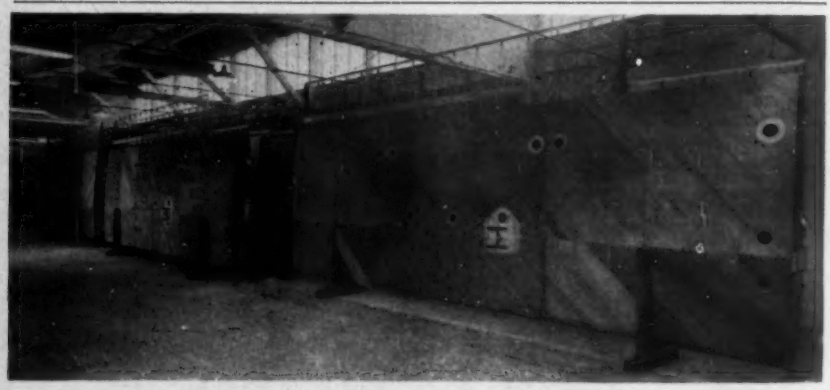
Plans for an elaborate system of highways, flight strips, airports and access roads should be made now in readiness for immediate realization when the peace comes, Congressmen speaking at the recent annual convention of the American Road Builders' Association declared.

Participating in the discussions were Representatives Randolph (D., W. Va.), Robinson (D., Utah), Mott (R., Ore.), Stefan (R., Nebr.), Wolcott (R., Mich.), and Senators Chavez (D., N. M.), and McClellan (D., Ark.).

"We should never be afraid of overbuilding," Randolph stated, continuing: "The important factor is to have enough in the way of transportation facilities, particularly of roads and airports.

"It is the history of our highway system that we have never had quite enough capacity; new building programs have seldom progressed as rapidly as the need for them increased. We entered this war with little or no margin of safety in capacity, and have paid for it by a sharp curtailment of civilian transport as an alternative to crippling our military requirements. We are faced with even more drastic reduction in months to come as our overtaxed railroad equipment begins to fail, and our highways continue crumbling under the incessant pounding of heavy military traffic."

Randolph advocated 20,000 airports, landing fields, and highway flight strips for the postwar period. "Military aviation plus a vastly expanded commercial and private flying postwar era means this planning must be in the near future," he said.



From Kitchen Sink to Wings: Hundreds of plywood wing assemblies for troop transport gliders, such as those shown above, have been produced by the Weber Showcase & Fixture Co., Inc., Los Angeles, Cal., since that firm turned to the war effort from making such things as soda fountain and luncheon units, and metal kitchen equipment. For the results it has achieved, the company recently was presented the Army-Navy "E."

The B.F.Goodrich Airplane of the month

DOUGLAS DAUNTLESS

LIKE A DEADLY BIRD OF PREY, a Navy SBD screams out of space and hurls its 500-lb. egg on a victim below. Scratch another Jap!

That story was written in the Coral Sea . . . in the Gilberts . . . at Midway. This one carrier-based dive bomber, known as the "Dauntless," has been credited with sinking more combatant tonnage than any other plane in the Pacific. No wonder the Army adopted it too, calling it the A-24.

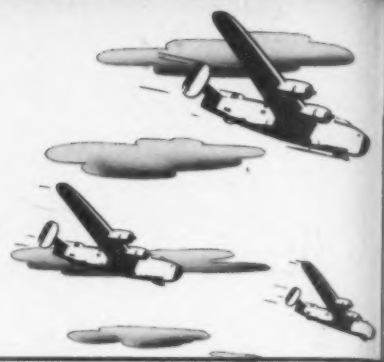
This month B. F. Goodrich, makers of Silvertown Tires, De-Icers, Bullet-Sealing Fuel Cells, and many other aviation products salutes the Douglas Dauntless—a great plane with a glorious fighting record!

In war or peace

B.F.Goodrich

FIRST IN RUBBER

B.F.GOODRICH RUBBER RESEARCH FOR THE *Aviation industry*



SO OUR FLIERS WILL NOT GO DOWN IN FLAMES

NO WONDER his mechanic whistled when he saw the fighter's wings. They looked like lacework. Neat rows of bullet holes crossed and quartered along them, stitched by a Zero's gunfire. Yet the pilot just hopped out, grinned, and went below to file his report—"...one sure, two possibles."

The "one sure" had vanished in a sheet of flame after one burst. The "two possibles" had glided down on the sea after the last drop of fuel had run out through their riddled wings.

Chalk up one more lopsided American victory. And chalk up one more valuable American pilot and plane saved by bullet-sealing fuel cells. The Zeros didn't have them. His American plane did. Without them, he might have been a "flamer" too . . . he surely would have been forced down out of the fight. Instead, he was telling his fellow pilots how a Zero disintegrates when a burst strikes home, and three Japs were wherever Japs go after dying for the Emperor.

Right here is where morale is born and nourished . . . in incidents just like this one. These pilots don't take off haunted by that nightmare of flaming death which haunts the mind of every Jap pilot. Our men *know* their planes are built to take it as well as dish it out. They know their fuel tanks can be pierced by 30s, 50s, incendiaries, and cannon shells and still hold the gas to bring them home. Yes, bullet-sealing fuel cells mean peace of mind. They're one of the biggest reasons why our fliers dive in against terrific odds without flinching . . . and come home to tell the tale.

B. F. Goodrich makes many of the bullet-sealing fuel cells used in our warplanes. We have pioneered many of the developments in fuel-cell construction that have given our fliers an all-important edge on the Jap . . . developments that are helping to keep our fliers' morale highest in the world!

A FEW B. F. GOODRICH DEVELOPMENTS IN FUEL CELL CONSTRUCTION

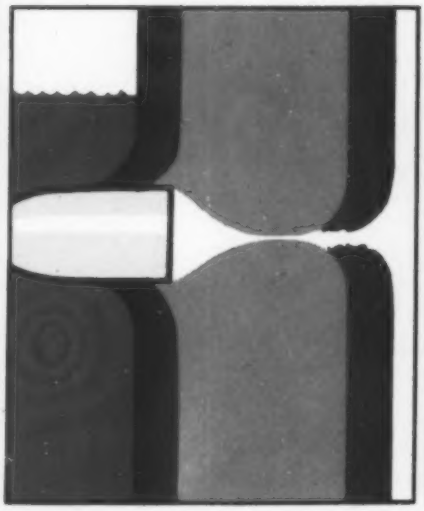
Developed leak-proof tank insert . . . Produced first cells for 4-motor bombers . . . Developed synthetic rubber molded connections . . . Applied Seal-o-matic principle of sealing . . . Developed effective adhesives for use in fuel-cell constructions.

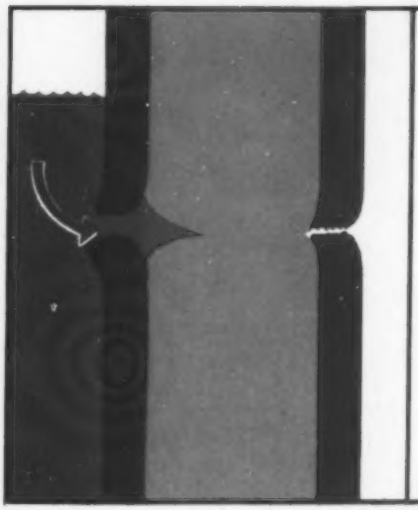
MAKERS OF B. F. GOODRICH TIRES AND OVER 80 RUBBER AND SYNTHETIC RUBBER PRODUCTS FOR AIRPLANES

Why our planes can be shot through the heart

AND STILL KEEP ON FIGHTING!

A FEW BASIC PRINCIPLES will show how a bullet-sealing fuel cell functions. At the left is an actual fuel cell—one of the types used in our planes today. At right is a cross-section schematic sketch to show the main elements. (A) is the protective outer covering; (B) is a tacky, elastic material which actually does the sealing; (C) is the innerliner, which is resistant to gasoline and aromatic fuels, and prevents fuel from coming in contact with the sealant.





WHEN A BULLET strikes a fuel cell it passes through wall, as shown at left. The sealant—a highly elastic, tacky material—is pushed aside by the bullet. After the bullet passes through, the lips of the wound come back in contact by elastic retraction and stick together due to tack. If a perfect seal does not result immediately, fuel seeping in causes the sealant to swell and completes the seal. B. F. Goodrich was foremost in the development of this sealing method (called the Seal-o-matic principle)—now accepted as the most satisfactory.

THE TERRIFIC FORCE exerted on a fuel cell when a .50-calibre machine gun bullet strikes is demonstrated in this unusual photograph taken during firing tests. A bucket placed over the open filling vent was lifted to a height of 20 ft. on a solid column of gasoline. B. F. Goodrich fuel cells can be subjected to the force of many such hits without leaking.

In war or peace

B.F.Goodrich

FIRST IN RUBBER

PRIVATE GEORGIE GREMLIN FLUNKED THIS

FUEL CELL QUIZ

CAN YOU SCORE 100%?

There are ten true statements below on recommended maintenance procedure. Each statement is followed by three reasons why (a, b, c). Only *one* reason in each group is correct. Can you pick all ten correct ones?

1. Cells should be at least 50° F. before removal is attempted because . . .

a. Cells "freeze" to plane at lower temperatures.
b. "Vapor locks" develop at lower temperatures.
c. Synthetic rubber may crack if severely distorted at lower temperatures.

2. A man must always be stationed outside whenever another man is working inside a large fuel cell . . .

a. To watch out for spies.
b. To be ready to remove inside worker in case of emergency.
c. To give inside man friendly advice.

3. If gasoline has penetrated large area in sealing material, this area should be removed before repair because . . .

a. Gasoline will remain in sealant and may eventually injure cell beyond repair.
b. Gasoline-saturated sealant harbors gremlins.
c. If not removed, spontaneous combustion may cause explosion.

4. Patching should always be done in a dry place because . . .

a. Moist air causes fire damp.
b. Dampness or moisture makes good adhesion difficult.
c. Moisture rots sealant.

5. During drying process, puncture should be pried apart to . . .

a. Allow fuel in sealant to evaporate and prevent harmful absorption.
b. Discover hidden bullet fragments.
c. Find "true center" of puncture.

6. Cements should always be prepared immediately before using because . . .

a. Cement loses proper consistency rapidly due to vaporization of solvent.
b. You need different types of cement at certain hours of the day.
c. Cement absorbs moisture from the air.

7. When making a repair, fuel cell should be buffed thoroughly because . . .

a. Buffing warms up the surface.
b. Buffing smooths the surface.
c. Good adhesion cannot be obtained without buffing.

8. All buffed surfaces should be lightly washed with solvent because . . .

a. It loosens up the cell wall.
b. Small particles left by emery cloth would prevent proper adhesion of patch.
c. It primes the sealant.

9. Vapors of cements and solvents should not be allowed to accumulate in cell undergoing repair because . . .

a. Vapors are highly inflammable and might cause an explosion.
b. Vapors may damage cell interior.
c. Vapors cause patch failure.

10. Cells with interior repairs should be dried for 24 hours at 100° F. before fueling because . . .

a. This keeps water out of gasoline.
b. Cements need this thorough drying to prevent repair failure.
c. This preserves fuel's octane rating.

WHAT IS YOUR SCORE?

Each correct answer counts 10. 1-c, 2-b, 3-a, 4-b, 5-a, 6-a, 7-c, 8-b, 9-a, 10-b.

This is one of a series of maintenance quizzes prepared for ground crew trainees of the U. S. Army Air Forces Technical Training Command. It is our hope that this series will help all maintenance men get maximum service, safety, and efficiency from military, commercial, and civilian aviation equipment.

Skyway or Highway

B.F.Goodrich

FIRST IN RUBBER

4 Types of Planes Needed For Postwar Use, Davies Predicts

Four different types of airliners and airports for specific types of operations will be needed in the postwar period, W. W. Davies, research engineer of United Air Lines, believes. Davies visualized the possible development of the various types at a recent meeting of the American Society of Mechanical Engineers in Davenport, Ia.

He listed the following planes of the future: (1) a four-engined, 63½-ton, 100-passenger transport with a cruising speed of 266 miles an hour and a range of 2,500 miles, primarily for passenger operations; (2) a four-engined, 40-ton, moderate range passenger type for "club" service; (3) a twin-engined, 21-ton variable load carrier for either passengers or cargo, to be used in feeder services connecting with trunk airlines; and (4) a twin-engined, 16-ton "flying freight car" for cargo only.

Davies visualized these types of airports: (1) large terminals with parallel runways of from 8,000 to 10,000 feet; (2) medium terminals with parallel runways of from 6,000 to 8,000 feet; (3) feeder terminals with runways of from 5,000 to 6,000 feet; and (4) landing strips with strip-type runways of 8,000 to 10,000 feet.

Schedules Outlined

He outlined two possible coast-to-coast schedules for the de luxe 100-passenger airliner—one with two stops, which would require 11½ hours from New York to San Francisco; the other, a one-stop service of 11 hours. He estimated that, in the postwar period, there would be as many as 6,000 scheduled trips per month over a typical coast-to-coast route.

"Airplane I is a long-range, deluxe passenger craft having sleeper accommodations," Davies explained. "Only auxiliary baggage and mail space is provided. If the airline also has international operation, such a type plane might suit this purpose, depending on the route.

"Extremely long-range over water hops would require a larger airplane and the design would undoubtedly have to include cargo space in addition to passengers and mail.

"Airplane II is a moderate-range passenger type of craft, in which the accomodations are less than those in Airplane I and the passengers are, in effect, 'packed in.' This service will be comparable to 'club' or the better class of coach travel. Baggage and mail space only will be provided.

"Airplane III becomes a 'variable load carrier', carrying either passengers or cargo or both. This is accomplished by incorporating in the cabin a readily adjustable bulkhead separating passengers and cargo, allowing a choice of passenger-cargo ratio. Such flying equipment acts as a parallel feeder to the main trunk line as well as regular feeder serving off-line communities. It is expected that this market will vary, and the use of such an airplane will aid in maintaining higher payload factors. Passenger accommodations are moderate and simple.

"Airplane IV will come when the air cargo field expands. This will be wholly a cargo plane. During development of the air cargo market, Airplane III will probably suit this demand."

Davies said that in the development of any airplane, the most important consideration, from the airline operator's point of view, is the necessity of designing it to suit the specific work which it will be expected to perform.

"Experience has shown that it is impractical, and uneconomical, to take any newly developed craft and arbitrarily operate it in an airline system," he said. "Any system, by its nature, must offer a varied and diversified service. Analysis of the job to be performed is paramount, developing from this the airplane required to execute the desired operation."

Maintenance procedures in the future will follow the basic method now being used, Davies predicted.

"With improvement in equipment design and operation, the magnitude of work necessary per airplane may be decreased, thus simplifying the maintenance work required," he said.

Davies believes, however, that "trouble shooting" at enroute terminals is inefficient and causes delays, and hopes that future equipment will be so designed that complete replacement of a malfunctioning assembly or unit can be made during a scheduled stop.

"This may apply even to the complete power plant," he declared.

Davies added that with three or four different types of equipment, it may be desirable to have a like number of repair bases, located at the best point enroute, to suit the particular airplane operation.

"Bases may be combination maintenance and overhaul terminals where major checks and engine changes may be accomplished regularly between schedules," he predicts.

United Nations Hold Key to Peace Era —Chatfield-Taylor

"By air power we shall probably gain our victory and by air power we shall probably find the answer to how to maintain peace," said Wayne Chatfield-Taylor, Under Secretary of Commerce, in an address May 17 in Los Angeles, Cal. Chatfield-Taylor spoke at the beginning of the Foreign Trade Week observance in Los Angeles.

"We might well start with aviation as a basis for an experiment in international analysis," he said. "We have learned many things that aviation can do in war, but we have merely scratched the surface of its peacetime applications.

"All elements for constructive international agreement as well as all elements for destructive international discord are present in the commercial aviation situation. If the friendly victorious United Nations agree on a pattern for aviation which will fairly benefit the orderly development of air transportation, the principles developed in such an agreement can be applied to other controversial subjects such as ocean shipping, or international industrial investments. If the United Nations fail to reach an agreement on aviation, we can have little hope for real agreement in other fields."

Damon Endorses Postwar Plan Advanced by Pogue

Hourly departure of passenger transport airplanes from New York to the West Coast and even more frequent schedules for Chicago, Boston and most other cities, as commonplace airline service 10 years after the war, was forecast by Ralph S. Damon, president of Republic Aviation Corp., Farmingdale, N. Y., at a meeting of the Society of Automotive Engineers in New York.

Damon also pointed out that while after the war there will be a tremendous increase in the business done by the commercial airlines, he does not believe it will by any means supplant the now existing forms of transportation. "I doubt whether aviation will ever touch nine-tenths of the transportation now carried by rail, road and water," he said. "Each form of transportation has its particular utility and even by the greatest stretch of the imagination it is not possible to picture aviation performing all of the functions now divided among the several modes of transportation."

He expressed approval of one of the recent proposals of L. Welch Pogue, chairman of CAB and a member of the U. S. Committee on International Air Policy, to the effect that for international traffic the planes of any nation shall have non-exclusive rights to pick up and to discharge, to fly, to fuel and to service in international traffic within any other nation.

"Such a plan does not infringe the intra-national rights of any nation to its own cabotage which should be reserved to each nation or granted to others by the nation involved," Damon asserted. "The important thing for us to know and to want to do something about is to be certain in the peace and the disarmament that there are no hamstringing regulations applied which may prevent the full, free and happy use to the world of the benefits of commercial aviation."

Canadian Pacific Air Lines Making Postwar Plans

Canadian Pacific Air Lines is making a study of postwar plans in anticipation of difficulties which will emerge after the war, D. C. Coleman, chairman, told shareholders of the company at a recent meeting. All branches of the company's worldwide facilities are studying the postwar outlook, he said.

"The initiative and progress already displayed indicate beyond doubt that the company will be ready to undertake its full share of peacetime air transportation requirements both within and without the Dominion," Coleman asserted.

NWA Looks to Future

A resolution authorizing the "setting up of a postwar planning committee to study every phase of postwar problems and all possibilities of converting war operations to more constructive peacetime activities" was adopted at recent meeting of the board of directors of Northwest Airlines, Inc., St. Paul, Minn. Membership of the committee will be announced later.

House Provides Funds for 27,642 More Navy Planes

Special Types, 100 4-Engined Transports Are Also Provided

By Katherine E. Johnsen

A $32,243,567,198 Naval appropriation bill—looking toward a doubling of naval planes and pilots and vast construction of aviation bases on distant battlefronts during the coming year—was passed by the House during the fortnight.

Procurement of an additional 27,642 planes at an estimated cost of $4,847,725,000, plus "special types" of airplanes—the characteristics of which remain confidential information—at an estimated cost of $75,000,000 is provided for in the Bureau of Aeronautic's allocation of $4,583,725,000 cash and $2,000,000,000 contractual authority.

The Navy's program calls for 100 4-engined seaplane transports of which 20 are to be along the lines of giant 70-ton Martin-built "Mars".

Top Naval men, reporting to Congress on how the coming appropriation will be spent, made comprehensive disclosures on naval aviation outlook for the coming fiscal year beginning this July.

Admiral Ernest J. King, Commander in Chief of the U. S. Fleet and Chief of Naval Operations, although again heralding the aircraft carrier as "the backbone of the fleet", disclaimed the theory that the airplane has put the battleship "out" in modern warfare.

Battleship Not "Out"

"The battleship is far from being ended," he said, and explained:

"Our battleships at the time of Pearl Harbor lacked the speed and flexibility necessary to become a part of a present-day task force, as well as the anti-aircraft armaments for their own and a task force's protection. However, the modern battleship is a different story. In the few instances they have had an opportunity to prove themselves in battle, they have shown that the day of the battleship is far from being ended. At the Battle of Santa Cruz, a battle of enemy aircraft against our surface vessels, the gunfire from one of our modern battleships was so heavy and accurate that few planes were willing to press home an attack through it. It is estimated that of the attacking force, only three dive bombers . . . escaped . . . Such a ship is an important adjunct to any task force and will become increasingly important as we gain control of the air. Unfortunately, it takes much time and material to build battleships, and we must get on with the war. I feel, however, that we are extremely fortunate in having the number of modern vessels of this type with the fleet that we do . . . we have six now and two more almost ready."

But the Navy looks to the aircraft carrier with its accompanying planes to carry the brunt of the battle, King indicated.

"The side which gains control of the air has an almost overwhelming advantage," he told Congressmen, continuing:

"This applies equally well to defensive as well as offensive operations, and it applies also to surface as well as amphibious operations. Whether our strategy in the Pacific becomes a step-by-step reinvestment of the islands or a flank approach to Japan, we are going to need carriers and in quantity. The carrier, per se, is as vulnerable as it is necessary and attrition in this type is bound to be high.

"There is also the ACV or auxiliary aircraft carrier which we are acquiring in considerable numbers. They are by no means comparable to a ship built as an aircraft carrier, being deficient in speed, size and other characteristics. However, considering their numbers, ease of construction and so forth, they are expected to be most useful, particularly in the matter of transporting fighter aircraft and in convoy work. These auxiliary aircraft carriers are substantially a flying deck mounted on a merchant ship hull."

Hails Task Force

"The fleet as such no longer exists . . . Missions in modern naval warfare are generally accomplished by task forces," the Admiral summarized.

A result of the lessons of this war, driving home the importance of aviation to naval operations, will be a thoroughgoing reorganization in the permanent set-up of the Navy Dept., King suggested. Although the reorganization is "still a matter of concern and study", he said: "I am hopeful that the set-up, the relationships, that we have found essential in order to get on with the war may presently be formalized, because we have, of necessity, made certain adjustments."

Aircraft delivery figures are increasing monthly and July, 1944, will see twice the total number of naval program planes—excluding losses— as are now on hand, Secretary Frank Knox reported.

Following is a breakdown of funds carried in the 1944 Naval Appropriation bill for aircraft production:

For 27,642 additional airplanes	$4,847,725,000
For "special types" of airplanes	$ 75,000,000
For expansion of production facilities	$ 21,000,000
For liquidation of prior contract authorization for planes	$ 40,000,000

The Navy's previous program, in line with the President's goal of 185,000 planes in 1942 and 1943 calendar years was 27,500 planes—but 55,072 were appropriated for, to take care of losses. The $40,000,000 carried in the present appropriation for liquidation of prior contract authority will put this program "out of the way". Present indications are that "there will be a six months' delay in the complete realization" of the Army-Navy plane objective of 185,000, but that it will be accomplished by July, 1944. Naval planes covered in the present appropriation will not be coming off the production lines until after that date.

Peak in aircraft production will be reached by December, 1943, and from that point on plane production will be levelled off, according to Rear Admiral John S. McCain, Chief of the Bureau of Aeronautics.

The Navy's new plan to double its aircraft was prompted by military needs and to give "an impressive superiority for naval action", and not "to keep the aviation industry going at full tilt", McCain testified, refuting information given Congress by Capt. E. A. Cobey, who said:

"I understand with regard to this large plane program that the purpose of keeping the industry fully occupied does enter into it to quite a large extent because the WPB has approved this airplane program partly on that basis."

Materials requirements for the Navy's new goal in planes—11,773 of which are slated for delivery by the end of 1944 and 15,869 during the first half of 1945—"can be met" and have been scheduled in WPB's program for the 1944 calendar year, McCain assured skeptical Congressmen.

Plane Costs to Drop

Plane costs in 1944 will show an overall drop averaging 10% under 1943 costs, naval authorities have estimated. Costs in 1941 and 1942, however, were considerably under calculated 1944 costs, a fact explained by cheaper materials and labor in the pre-war years. A Navy fighter which cost $112,205 in 1943 will be down to $97,365 in 1944, but was only $74,825 in 1941 and $79,851 in 1942.

The Navy has brought down cost estimates on Glenn L. Martin's "Mars" by over 33%, McCain reported.

The Navy will procure five helicopters from the Army, but experimental work to increase practicability of this type plane has been delegated to the Army. However, the Navy will transfer $65,000 of its funds to the Army's procurement center at Dayton, Ohio, for developmental work on helicopters, to "keep its finger in the pie".

"Imagination as to what use you can put (the helicopter) has perhaps over-

(Turn to page 42)

Following is a tabulation of costs of Naval planes on which the 1944 appropriation is based:

Type of Plane	*1943 Cost*	*1944 (Estimate)*
Fighter	$112,205	$ 97,365
Scout bomber	171,415	163,140
Torpedo bomber	214,664	195,500
2-Engine patrol bomber	265,720	245,764
2-Engine transport	220,995	202,000
2-Engine advanced trainer	110,645	106,866
Primary trainer	15,215	13,852

The New Fairchild Cargo Plane Will Speed Delivery of Tanks, Guns, Troops and Supplies

On that fateful December 7th, Washington opened the drawer marked "Blueprint For a Global War."

"Here's your kind of a job, Fairchild—to develop a plane that can help supply an army on the other side of the world."

Fairchild has that job because of 20 years of aeronautical research and engineering experience in "Creating the Plane for the Purpose." Among those planes is a notable line of cargo-carrying aircraft.

Today, Fairchild is building a new cargo plane designed expressly for carrying tanks, guns, troops and equipment over great distances for delivery *to small fields* at the front! Its precise performance and other characteristics are military secrets.

"ON THE BEAM"

"The independence and liberty you possess are the work of joint councils and joint efforts, of common dangers, sufferings, and successes."
—Geo. Washington's Farewell Address

Buy U. S. War Bonds and Stamps

It was created out of the needs of this war to fulfill the needs of this war. It bears the Fairchild "Touch of Tomorrow."

Other Fairchild "weapons" for winning the war include the famous Cornell primary trainers (PT-19, and PT-26) and the new Fairchild-Duramold twin-engine advance gunnery trainer (AT-21), all powered by Ranger Aircraft Engines. And while the new Fairchild military cargo plane is the latest of these "weapons," it is by no means the last.

Fairchild Aircraft *Division of Fairchild Engine & Airplane Corporation, Hagerstown, Md.*

Navy Planes

(Continued from page 40)

run the performance it does," McCain told optimistic Congressmen envisioning the helicopter as the solution to submarine detection.

Total carried in the 1944 appropriation for experimental aviation work is $19,500,000, as compared with the $15,188,000 provided in 1943.

McCain's report that the Navy does "practically no basic research" in aviation —only applied research and experimentation met with rebuffs from Congressmen, one of whom remarked:

Research Questioned

"I . . . get the general impression that the Navy depends upon scraping up a little information—from civilian organizations— and that the Navy has no laboratory and no research establishment where purely theoretical fields are explored."

McCain contended that adequate basic research is done for the Bureau of Aeronautics by the National Advisory Committee for Aeronautics, the Naval Research Laboratory, and to a lesser degree by the Office of Scientific Research and Development, the Bureau of Standards, and the Forest Products Laboratory.

"The Navy has provided the following amounts for the construction of plants for the manufacture of airplanes, engines and accessories," Capt. Cobey reported.

1941 Appropriation—$75,000,000
1942 Appropriation—325,309,300
1943 Appropriation—25,000,000, plus $200,000,000 in contract authority (for which appropriation has not yet been requested).

Total investment of the Navy in aircraft production plants is $625,309,300; value of airplanes on hand in the Navy, as of April first, is approximately $1,367,254,000, Cobey said.

Balance of Navy funds, earmarked but not yet spent for aircraft plant expansions is $68,905,000.

Loan to Brewster

The Navy is guarantor to $35,000,000 in bank loans made to the Brewster Aeronautical Corp., of which Henry J. Kaiser was recently named chairman of the board, Congressional querying revealed. The Navy itself, and through Defense Plant Corp., has invested $7,835,000 in Brewster's Johnsville plant, it was also disclosed.

Advance aviation and ship base constructions on foreign fields will "reach tremendous proportions in the immediate future," according to Naval authorities. For this purpose an estimated $676,496,180 provided in the 1944 Appropriation measure is to be spent, but the strategy of war has yet to determine where the bases are to be established.

Continental establishments account for 72% of the total of naval shore construction during the present fiscal year but during the coming year the situation will be reversed and 77% of total naval shore facilities established will be on foreign fields.

In addition to the allocation for advance bases—a large portion of which will be for aircraft, the 1944 Naval Appropriation will forward $130,025,000 for other aviation shore facilities, including $32,000,000 for expansions of Naval Air Transport stations.

Additional points on trends in naval aviation are:

Nonrigid airships in naval service by July, 1944, will be 181. Present number on hand is 45. Funds totalling $3,450,000 in the present appropriation will cover the cost of spare airship engines, envelopes and tail surfaces.

Rigid airships have apparently been abandoned by the Navy. One dirigible "left over" was scrapped, officers reported.

Navy's helium needs for its enlarged airship program will jump to 160,000,000 cu. ft. at an estimated cost of $1,920,000 in 1944 from 110,000,000 cu. ft. at a cost of $1,320,000 during the present year. Known sources of helium are very limited. The Bureau of Mines main plant is at Amarillo, Texas. A new plant whose capacity is being enlarged is at Excell, Texas, near Amarillo. Bureau of Mines also plans opening four additional new plants to meet military requirements for the lighter-than-air gas.

Operation of aircraft will cost the Navy an estimated $598,000,000 during the coming fiscal year.

Overhaul of airplanes and engines will cost $698,000,000. Over 10,000 planes will require overhaul in 1944, as compared with the less than 3,000 requiring overhaul in 1943. Navy does all of its own overhaul work with its present corps of 21,498 mechanics.

Mechanic output from the Navy's six training schools is being stepped up and will reach 5,700 a month by the end of the year, but there is a definite shortage in this field, it is reported. Every plane in the air requires 15 groundmen; it used to be only 12, Naval officers stated.

Aviation machine tools required to replace worn-out equipment in overhaul shops will amount to $6,000,000 during the coming fiscal year.

Aircraft instruments for the Navy's planes will cost $27,027,000, during the year.

Radar installations cost from $2,200 to $30,700 per plane.

Coast Guard will train approximately 250 pilots during the coming year; provision was made for the training of about 190 Coast Guard officers and men during the present year. The CG now has 102 commissioned pilots and 19 enlisted pilots doing coastal patrol from ten small air stations.

Navy has $8,500,000,000 *unexpended balance* on hand to pay aviation bills as they fall due up to June 30. Uncommitted balance for aviation is $1,858,868,830.

An allocation of $312,636,030 in the Navy Appropriation bill, 1944, for pilot training in five courses, will about double the present number of Naval pilots, it was estimated by Secretary Knox.

Following is a breakdown of the calculated expenditure with data on the Navy's five training programs:

Flight Preparatory Schools	$ 29,304,670
(Navigation, communications, recognition, mathematics, physics, aircraft engines, aerology, physical training, and principals of flying)	
Number of Schools (contract colleges)	20
Estimated capacity in 1944	11,616
Maximum yearly output	45,516
Estimated output, 1944	45,516
War Training Service	$ 41,641,284
(Recognition, communications, aircraft engines, aerology, physical training, civil air regulations, and flight training)	
Number of schools (contract)	100
Estimated capacity, 1944	7,400
Maximum yearly output	41,978
Estimated output, 1944	37,780
Pre-flight Schools	$ 18,162,393
(Celestial navigation, communications, recognition, gunnery, seamanship, first aid, military drill, and physical training)	
Number of schools (contract)	5
Estimated capacity, 1944	8,941
Maximum yearly output	37,766
Estimated output, 1944	35,944
Primary Flight Training	$ 96,698,418
(Navigation, communications, recognition, gunnery, physical training, and flight training)	
Number of Schools (Naval Reserve)	18
Estimated capacity, 1944	8,003
Maximum yearly output	35,482
Estimated output, 1944	31,216
Intermediate Flight Training	$126,829,265
(Navigation, communications, recognition, gunnery, radar, physical training, and flight training)	
Number of Schools (Naval Reserve)	2
Estimated capacity, 1944	8,498
Maximum yearly output	30,209
Estimated output, 1944	26,080

Navy estimates that the cost of training each pilot is $27,000 and that the average time required is from 62 to 70 weeks. About three months are spent in flight preparatory school, from two to four months in War Training Service, about 3 months in a preflight school, about 3 months in primary training, and from three to four months in intermediate flight training.

"This baby gets us off to a *FLYING START!*"

FLEDGLING PILOTS are early taught that the speed of the air flowing over their wings —not the plane's speed over the ground—is the measure of their safety from inadvertent stalls. The tell-tale dial of the air speed indicator gives a sure warning. This versatile instrument accompanies a pilot throughout his career, "nursing" him through early training, guarding him in battle tactics, helping solve navigation problems when there are neither stars nor landmarks to steer by. It is an instrument worthy of all the skill its maker can put into it . . . the kind of skill which goes into all Kollsman aircraft instruments, long supplied to military and civil aviation.

THE KOLLSMAN SENSITIVE AIR SPEED INDICATOR *provides the highly precise data required for modern air navigation as well as a constant check on the safe and efficient flying attitude of the plane. It indicates the air speed of the plane to within one m.p.h.*

WHATEVER TOMORROW'S PLANES *will look like or how they will perform, instruments will play a large part in expanding their scope and usefulness far beyond anything we know today. Kollsman engineers are constantly developing new and better aircraft instruments which will help widen and extend tomorrow's skyways for a new era in aviation.*

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Pilots from 29 Countries Trained at Southwest Airways

Men from 29 countries have been sent to Southwest Airways for Primary, Basic or Advanced flight instruction—training which helps keep their flags flying as symbols of freedom over every continent. ★ There is every facility available at our four fields to equip these young men for the job ahead: to give them skill superior to the enemy... to handle themselves effectively in hazardous operations... complete their missions and return safely home with ship and crew. ★ Testament to how well they have learned is more than just the many citations and decorations earned in combat on every fighting front. It is the hundreds of other planes which fly today in every corner of the world, too—transports, trainers, cargo liners—all with men at the controls who earned their wings with the Thunderbird. ★ In learning to fight and fly together, they also are learning to keep the peace together, uniting still further the nations of the world for the peace-time understanding which is to come.

SOUTHWEST AIRWAYS *Phoenix, Arizona*

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TRAINING THE FINEST FIGHTERS TODAY, THE FINEST FLYERS TOMORROW

CONTRACTORS TO THE UNITED STATES GOVERNMENT • UNITED STATES ARMY • UNITED KINGDOM GOVERNMENT

Independent Air Commission

(Continued from page 15)

civil aviation legislation, has persistently fought for CAA's independence. He has declined to commit himself to the reorganization proposal of Interstate and Foreign Commerce, however, until he has reviewed its specific details.

The new Lea bill—still subject, however, to further change in Committee and on the floor—makes several improving changes, calculated mainly to overcome opposition by state's rights advocates and others that threatened its passage.

Bulwinkle, who will lead in steering the legislation through the House, said that with these perfecting revisions, he does not anticipate any considerable opposition.

He reported the following, as the most significant differences between the two bills:

1. Multiple Taxation. The new bill simply calls for a study of the question, whereas the old version prohibited multiple taxation.

2. State Regulation. The new bill provides for federal cooperation with states and contemplates that there may be state regulation with the consent of Congress; the reported bill flatly prohibited state regulation.

3. Federal Zoning. The new bill makes zoning depend on the consent of the municipality owning an airport and payment by local interests for property taken; reported bill provided for compulsory federal zoning.

4. New Routes. This bill limits to "reasonable extensions," powers to "force" or "initiate" air transport service; the reported bill provided for unlimited compulsory new service.

5. Foreign Air Transport. This bill requires that carriers in foreign air transportation give adequate service; reported bill did not.

6. Air Commerce Act. This bill gathers the provisions of the Air Commerce Act of 1926, and repeals that Act; the reported bill did not.

7. Restraint of Trade. The new bill re-writes sections 408 and 409 of the Civil Aeronautics Act of 1938, making stringent provisions against "consolidations, mergers, and acquisitions of control" and "interlocking relationships" which would "result or has resulted in creating a monopoly or monopolies and thereby would or does restrain competition or jeopardize another air carrier not a party to the transaction or relationship"; the reported bill did not.

8. Private Airfields. The new bill directs the Commission to distinguish the *ground* operation of aircraft on private airfields and not to regulate it in ordinary circumstances; the reported bill provided for federal regulation of the ground operation of aircraft on private airfields.

9. Wording Improvements. The new bill deals with "domestic" and "foreign" air transport, eliminating the distinction of "interstate" and "overseas" transport; the reported bill did not eliminate these distinctions. The new bill also makes several other wording improvements.

10. Right of Intervention. The new bill clearly gives the right of intervention to an interest air carrier in transport transactions.

11. CAB Delegation of Duties. The new bill aims to improve administration by giving the CAB explicit powers to delegate duties.

The new Lea bill retains, however, many of the forward-looking measures, anticipating and providing for development of a strong U. S. transport system, contained in the old version.

The fundamental policy of federalization of all U. S. airspace and federal regulation of U. S. air commerce, a policy recognized as inevitable to the creation of a strong national system, is the declared policy of the new bill, as well as the old.

Other provisions retained in the new bill are:

1. Reports on Post-war Planning. The Civil Aeronautics Commission is directed to investigate and report to Congress "at the earliest practicable date" on all phases of developments which may be anticipated during the postwar period. The Commission is to include in the report: "(1) recommendations for the sound and swift development of the domestic and foreign air commerce of the U. S. . . .; (2) information and recommendations concerning the economic and commercial developments in aviation which may be anticipated during the postwar period; (3) information and recommendations regarding the transportation of persons and of various classes of property by air and probable cost of such transportation and the most desirable means for the development of such transportation; (4) information regarding probable advances and developments during the postwar period in equipment, navigation, flying technique, methods of operation, meteorology, and other matters affecting safety, efficiency, and economy in air navigation."

2. Elimination of Surcharge on Airmail. The Postmaster General and the Civil Aeronautics Commission are directed to investigate and report to Congress on the possibility of transporting all classes of mail (including parcel post) by air where delivery would be speeded by the use of air transportation.

3. Aviation Insurance. The CAC is required to report to Congress on the "adequacy and reasonableness" of aviation insurance and reinsurance available to commercial aviation, and on the cost to the Government of offering reinsurance for aviation risks.

4. Weather Service. The Weather Bureau is directed to make investigations and studies of atmospheric phenomena and establish meteorological offices and stations as are necessary or best suited for ascertaining in advance, information concerning probable weather conditions; to assist in development of an international basic meteorological reporting network; and to train personnel for weather bureaus at government expense.

5. Aeronautical Training. Training of air pilots and aviation mechanics and technicians by the government is provided for, and the Civilian Pilot Training Act of 1939 repealed.

6. Aviation Education. The Administrator is directed in several specific ways to promote aviation education, particularly among the youth of the nation.

Senate Group Authorizes CAA to Train Pilots on Active Military Status

A noteworthy success was achieved by those fighting on Capitol Hill to guard the identity of the nation's civilian pilot training program and keep it strong during the wartime period when the Senate Commerce Committee approved legislation which will have the effect of keeping "purse" control over War Training Service with the Civil Aeronautics Administration, instead of transferring it to the military services as planned by the Budget Bureau.

A House-approved bill authorizing unexpended Civilian Pilot Training funds to be used for WTS, was reported out with an amendment—more significant than the bill—authorizing CAA to train pilots on active military status.

The Budget Bureau for several weeks blocked the bill in the Commerce Committee on the grounds that funds appropriated for "civilian" training could not properly be used for the training of men on active military status.

The amendment authorizing CAA to train men with active military status "will clarify the present situation and the Civil Aeronautics Authority will have control of the money to pay for the program that the CAA will carry out," the Commerce Committee report stated.

A showdown in the fight as to whom is to control funds for War Training Service. the Army and Navy or the CAA, is slated for the near future when the Senate takes action (1) on the Naval Appropriation bill for 1944, which provides $41,641,284 for WTS, and (2) on the bill. recently approved by the Commerce Committee specifying that CAA shall get the appropriation.

House Committee Will Test Renegotiation Law

A testing of the effectiveness and desirability of the renegotiation law as a method of profit limitation is slated to take place before the House Naval Affairs Committee, beginning the first week of June.

Several aircraft manufacturers, as well as Navy Department men, will be called in to reveal their experience with the law and give their opinions as to its strong points and weaknesses.

At the conclusion of hearings, Chairman Carl Vinson (D., Ga.) plans to bring out legislation aiming to remedy any present faults that may exist in profit-limiting procedure and improve present profit-control methods.

Florida Proposes New Law

All intrastate aviation in Florida would be placed in the hands of the State Railroad Commission under terms of a bill introduced May 13 by Rep. West of Santa Rosa. The legislation as proposed would require all airline companies to obtain licenses, and all airmen on public carriers in air commerce to obtain permits at a $5 annual fee. The measure also provides for inspecting aircraft and carrying out prescribed safety regulations.

Books

WAR EAGLES. By Col. James Saxon Childers. D. Appleton-Century Co., New York City and London. 350 pp. $3.75.

Col. Childers did a meticulous job of reporting in this most complete story of the American pilots in the Eagle Squadron of the RAF. Not only did he gain access to the British Air Ministry's official records on the squadron, but he crashed the gate to each man's conscience and heart.

His book traces the activities of the squadron from the time the men arrived in England to volunteer in the RAF fighter Command to the day they changed from the blue of the RAF to the brown of the great air force sent to England by their own country. An important milestone along this route was when these average Americans, who left home "for the reason that young fellows have always left home", learned that war is something more than airplanes and flying and fighting and glory. Some, facing death, turned back.

Those who went on and became heroes did so because they were "mad keen on airplanes and loved flying above all else." They scoffed at talk of idealism. They sought no Holy Grail.

To get intimate details about each member of the squadron, Childers lived with the men. His countless interviews reveal their true character. No attempt is made to glamourize them.

Much of the book is given over to authentic battle reports. The author digresses into discussions of tactics and strategy that could relate to any group of combat fliers, but these detours are in no wises dull. The book has 60 pages of illustrations, including drawings by an English artist, and photographs by American and English cameramen.

Col. Childers, himself a flier, is on active duty with the Army Air Forces abroad. He was a Rhodes Scholar and formerly lectured at Birmingham-Southern College, Birmingham, Ala. He gives much credit for preparation of the book to Capt. Harold H. Strickland of the Eagle Squadron, "who took a month's leave and spent it at my home, working with me until late at night, writing and editing enthusiastically and as carefully as if the book had been his own."

W. T.

WHY MEN CAN FLY. By M. K. Chapin. Reynal and Hitchcock, New York. Illustrated. $2.50.

Educators would probably classify WHY MEN CAN FLY as collateral reading for the junior high school student. It would doubtless be valuable at that level.

And, for the uninitiated general reader, this book also has much that is instructive and interesting. It is a competent narrative of aviation's significant developments, comprehensively treated.

But, unfortunately for the "general reader", much of the author's story is diluted by pedagogical asides, often only remotely related to practical flying. There are, except for the very young reader, too many excursions into elementary physics and mechanics.

Perhaps another edition, more concisely written, would have increased the interest this type of book undoubtedly holds for those who have yet to appreciate flying's expanding potential.

F. C.

THE STROMBERG INJECTION CARBURETOR. By Charles H. Fisher. General Editor, E. Molloy. Chemical Publishing Co., Brooklyn, N. Y. $2.50. 112 pp.

The development and application of the Bendix Stromberg system of carburetion in American aircraft being delivered to Great Britain has accented the need for detailed information on operation and servicing of this equipment by our British allies.

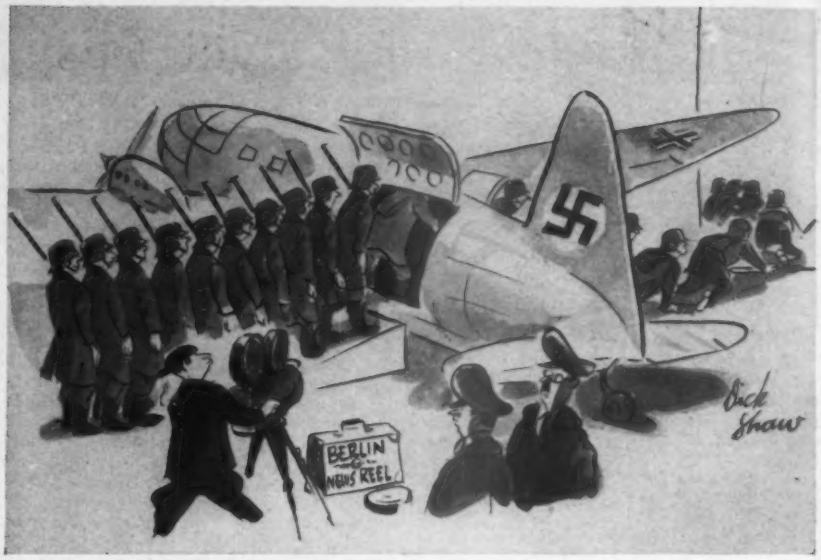
This text, designed to fulfill that need, is divided into two parts. The first part describes generally the principles, operation, and simple appropriate external adjustments. The second part covers the standard overhaul techniques, teardown, inspection and reassembly. The entire book is of a practical nature. It is profusely illustrated with detail sketches and working diagrams of the system, being largely a compilation of the manufacturer's instructions rephrased to conform to the British terminology. We have no doubt the text will serve a practical purpose in the libraries of many.

AIRCRAFT PROPELLER HANDBOOK. By Karl H. Falk. The Ronald Press, 1943. Revised Edition. $4.50. 142 pp.

The revised edition of this helpful book brings up to date all the First Edition data and adds factual information on some of the more recent design developments.

Many of the personnel whose work requires propeller design information such as characteristics, strength, vibration, selection of a propeller, are already familiar with the clearly presented, comprehensive information. A large portion of the book is described as "examples" and takes a specific set of design conditions and proceeds with the full determination of all the elements.

The text is straightforward and within the comprehension of non-technical personnel in most instances. Theory is by-passed as far as possible to assure practical value.



Letters

To the Editor:

As an interested reader of your magazine . . . which I always peruse thoroughly, I ran across a news item in the Apr. 15 issue . . . entitled "Kaiser Proposes Big Flying Wing," which is highly incorrect.

A quick check indicates that if four 8,000 hp engines are to be used with 175,000 lbs. gross weight, the resultant power loading will be less than that used in current military pursuit designs.

Figuring the fuel consumption for a 4,000 mile range with 68,000 lbs. of cargo as indicated in the second paragraph of this item, would leave but a few thousand pounds for the empty weight of the airplane, which is obviously wrong. If we assume that this was a mistake and that the total horsepower was only half of the figure quoted and also that the 55% useful load figure is correct, the payload could only be approximately 45,000 lbs. instead of the 68,000 lbs. claimed.

I know that figures can be juggled about, but, nevertheless, any claims made should be fundamentally right and not figures pulled out of a telephone book.

I have always found the statements published in your magazine correct in the past and will not believe that your editorial staff would intentionally publish false information. Let's stick to the facts.

C. F.

(Figures given in the story mentioned were released by Mr. Kaiser at a press conference. It may be that in answering all the questions of the press, some errors crept into his data—Ed. Note).

To The Editor:

While I am one of your youngest subscribers I want to congratulate you on the type of matter that comes out of your office. It is easy to understand why business executives enjoy reading your stuff.

When the bus industry was learning to walk there was a great controversy whether the word "buses" should be spelled "buses" or "busses". I believe Carl W. Stocks, Editor of Bus Transportation, succeeded in getting the matter before the best experts in the country, and it was agreed that "buses" was the proper spelling.

I am wondering if you could help develop for the industry whether it is "Air Line" or "Airline"? I notice the larger companies do not agree.

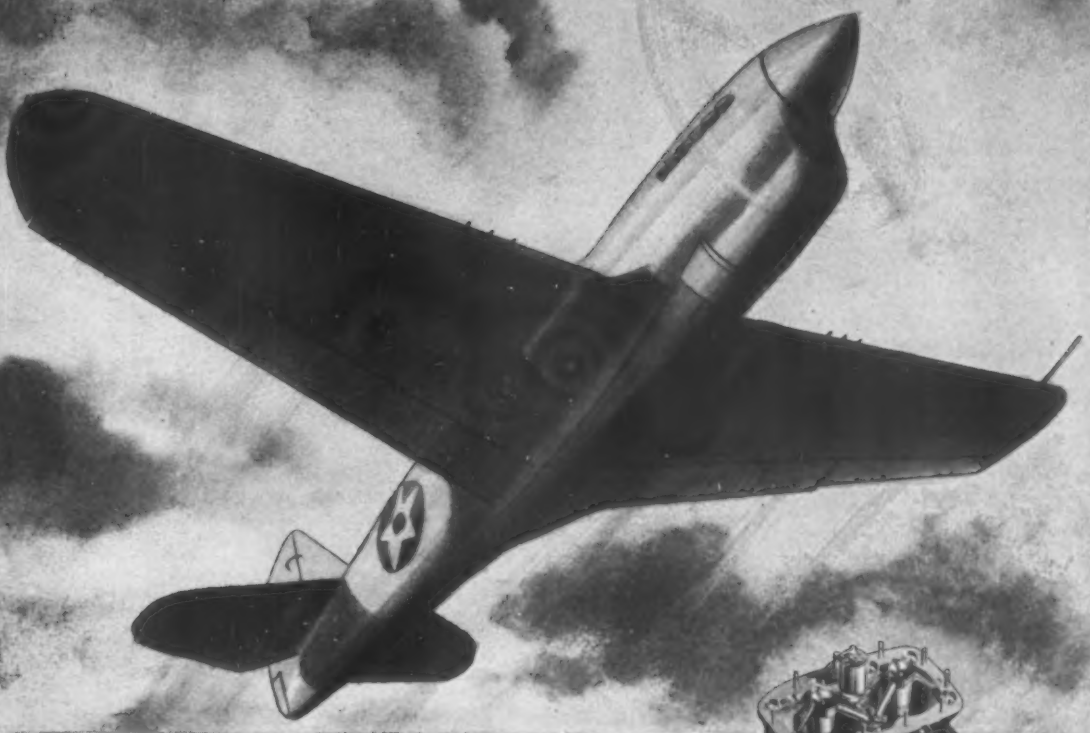
R. J. Littlefield
Superintendent of Motor Service
The Pennsylvania Railroad

We'll need some expert help on this. Correspondence from those who have comments will be appreciated.—Ed. Note.

Boeing Issues Unique Book

"Philosophy of Fighter Design" is the title of a novel new booklet, first of a series to be issued by Boeing Aircraft Co. The pocket-size booklet is illustrated with cartoons and charts showing the desirable qualities of a fighter plane.

When Ground-Strafers Rush "Upstairs"

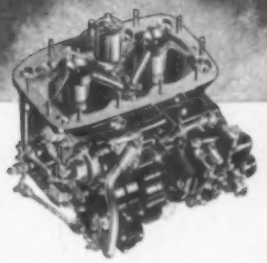


"STROMBERG" CARBURETION
PROVIDES CONSTANT POWER FLOW

Low altitude attacks on enemy supply columns by American fighter and bomber planes call for unfailing power in the "get-away." Here the automatic fuel metering, assured by "Stromberg" Injection Carburetors, instantly provides the increased power needed for lightning-fast, vertical climbing.

The amazing *flexibility* of "STROMBERG" Carburetion, by compensating for all changes in altitude, speed, propeller pitch or throttle position, assures complete maneuverability. Even gravity and inertia effects become negligible.

On all types of planes, "STROMBERG" Injection Carburetors not only provide constant power flow, but also maximum freedom from ice formation (due to vaporization of fuel) and maximum economy of operation.



"Stromberg"

INJECTION CARBURETOR

The "STROMBERG" Aircraft Carburetor is an important member of "The Invisible Crew" . . . precision instruments, and controls, which Bendix plants from coast to coast are speeding to our fighting crews on world battle fronts.

THE INVISIBLE CREW — Precision Equipment by Bendix AVIATION CORPORATION

BENDIX PRODUCTS DIVISION
of Bendix Aviation Corporation
South Bend, Indiana

CAB Decision Gives TWA San Francisco-LA Route

Will Compete With United; Western's Application Denied

By Eric Bramley

A DECISION which results in placing TWA into direct competition with United Air Lines between Los Angeles and San Francisco was handed down by the Civil Aeronautics Board on May 15.

TWA was granted permission to include Los Angeles as an intermediate point on route 37 (Winslow-San Francisco), with the restriction that flights via Los Angeles must originate or terminate at Albuquerque or points east thereof.

This restriction, however, does not preclude TWA from hauling passengers between Los Angeles and San Francisco.

In its decision, the Board completely reversed the recommendations of its examiner, Albert Forster, who had favored a Los Angeles-San Francisco route for Western Air Lines.

The Board's decision also:

1. Granted United stops at Stockton, Modesto, Merced and Visalia between Los Angeles and San Francisco.
2. Granted WAL a stop at San Bernardino on its San Diego-Los Angeles route, but denied company's applications for Los Angeles-San Francisco and Los Angeles-San Francisco-Sacramento.
3. Deferred decision on WAL's application for Los Angeles-El Centro pending decision in a case involving additional service east of San Diego.

Service authorized by the decision will not be inaugurated until national defense permits.

UAL Not Inadequate

United's Los Angeles-San Francisco service is not now and has not been inadequate, the Board said. "On the contrary, it appears that adequate facilities have been provided on existing schedules and that extra sections have been placed in operation to meet the peak demands of traffic," it added.

"United contends that a direct duplicating competition such as is here proposed is not consonant with the provisions of the Act or with the pattern for air transportation which heretofore has been laid down by the Board. It points out that the domestic air transportation system has been developed upon a system of competitive routes between widely separated terminal points operated via different intermediate points. It also refers to our previous decisions as indicative of an intent to continue such a pattern of competitive service.

"Whether a particular new route or service should be inaugurated must depend upon the facts and circumstances in the particular case construed in the light of the applicable provisions of the law under which the Board acts. We do not believe that it is either necessary or desirable to attempt to lay down at this time a rule for general application with respect to the inauguration of new air services which may involve competition with existing routes, but will proceed to consider proposals of the various applicants herein upon the basis of the facts before us."

TWA, the Board pointed out, now serves both Los Angeles and San Francisco, operates transcontinental schedules from each, but cannot fly between them.

It is clear, the Board continued, that operation to San Francisco by TWA under present authorization has never achieved an economically sound basis and as a result a satisfactory service to the public has not been provided.

"The operation proposed by TWA herein would result in the establishment of service providing a substantial amount of public benefit which cannot be realized under the existing route pattern and would eliminate the uneconomic features of route 37," the decision asserted.

"Single-plane through service would be inaugurated between San Francisco and points on route 2 which do not now have such service to San Francisco. Moreover, the latter city would enjoy the advantages of competitive transcontinental air transportation by TWA and United to the east coast by divergent routes serving different intermediate points.

"We are convinced that the predominant position of San Francisco and its present and probable future air traffic potentialities warrant the inauguration of an additional through transcontinental air service, and that the lack of intermediate points capable of providing sufficient supporting local traffic precludes TWA from providing through schedules which will serve only San Francisco, omitting Los Angeles, over its present authorized routes except at considerable loss.

"In addition, the proposed transcontinental flights would provide service in competition with United for traffic between Los Angeles and San Francisco, and it is reasonable to assume that such traffic would receive from both United and TWA the refinements of service which are undoubtedly stimulated by competition.

Through Service

"United and Western contend that long-haul traffic to and from San Francisco over TWA's system has been relatively low in volume in comparison with that moving over United's route No. 1, and that this fact is support for the contention that there is no substantial need for through transcontinental service by TWA. However, experience on other portions of our national air transport system has indicated that the traveling public has a marked preference for single-plane, through service when such service is in competition with connecting service. For example, service between Chicago and Washington is available over the lines of three carriers. American offers one-carrier service, whereas both United and TWA afford service through connections with Pennsylvania-Central Airlines. During Sept. 1940 a total of 1278 local passengers traveled between Chicago and Washington. Approximately 55% of this traffic was moved on American's six daily schedules, while only 23% was moved on TWA's 14 connecting daily schedules and 21% on United's 14 connecting daily schedules. Thus, it is a logical conclusion that the failure of TWA to attract a larger volume of traffic to its connecting service to and from San Francisco does not indicate a lack of need for through-plane service by TWA.

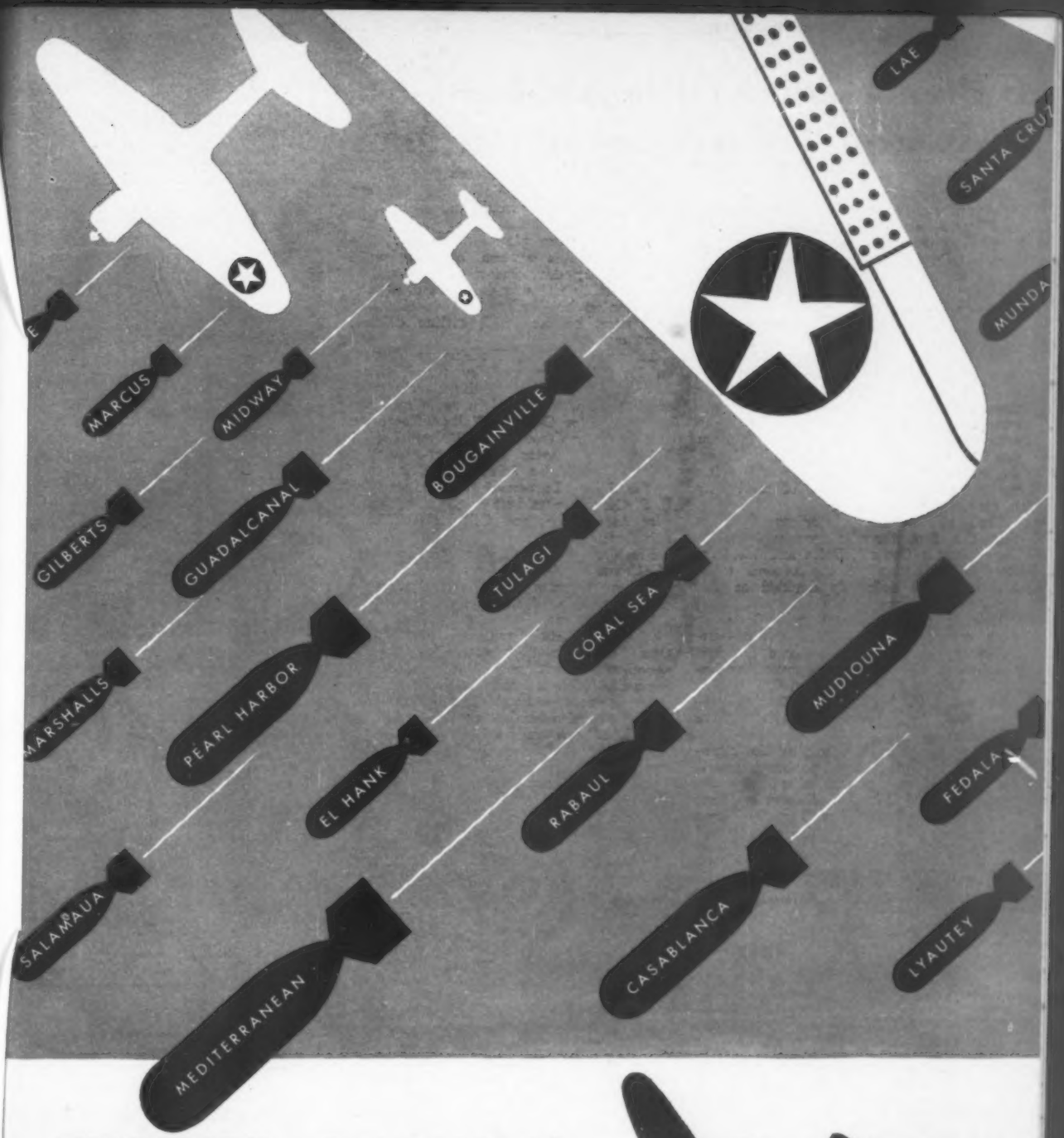
Discusses WAL

"The operations proposed by Western would not provide any air transportation not now made available by existing carriers. The main purpose of its proposed operation would be to provide service to passengers between Los Angeles and San Francisco in competition with United. Connections at Los Angeles would of course be provided with trans-continental schedules of TWA and American. However, there is no reason to believe that Western would induce any greater proportion of through traffic to and from San Francisco to move via Los Angeles than has heretofore moved by such routing, because it would offer the same type of connecting service as is now available.

"Western contends, in support of its application, that a great preponderance of the total traffic between Los Angeles and San Francisco is local traffic and that a local operation such as it proposes can best serve such local traffic. In the main, the contention is that the operator of transcontinental flights would be delayed frequently by weather in crossing the continent, thus making the service less desirable to local passengers and that such an operator would center its attention on service for the more lucrative long-haul business to the neglect of the local traffic . . . While it is probable that TWA would

(Turn to page 60)

Meet the Tweep: In order to save gas and rubber, this vehicle, known as a "tweep," is replacing TWA station wagons at LaGuardia Field. Employes have dubbed it the "Sky Chief, Jr.," after one of TWA's coast-to-coast flights. The scooter gets 50 miles to a gallon, and it is estimated that it will save the company 3,000 gallons of gasoline annually. In the photo, Constance Damiano, left, hands Louise Burnett two bags of company material from the stockroom to be rushed via tweep to an outgoing plane.



DAUNTLESS . . . Again and Again!

HAVING BORNE the brunt of the fighting in the Pacific, Douglas Dauntless Dive Bombers are now blasting the Axis out of Africa. A Rear Admiral of the U. S. Navy says: "*Your entire organization has reason to be proud of the performance of SB-Ds (Dauntless) which have alone sunk more combatant tonnage than all other arms.*" DOUGLAS AIRCRAFT COMPANY, Inc., Santa Monica, Calif. Long Beach, El Segundo, Tulsa, Oklahoma City, Chicago.

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Largest Builder of Combat, Cargo and Transport Aircraft

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6 Planes Released to Airlines on Anniversary of Air Mail

Biggest news in the celebration of the 25th anniversary of the air mail service on May 15-16 was the announcement by Postmaster General Frank C. Walker that the War Dept. is releasing six cargo airplanes to the airlines within the next 60 days.

In a radio broadcast on May 15, Walker revealed that he had been notified that the Army would release the equipment "to relieve the shortage of air mail planes.

"More may be available later in the year. Most of you know that half the planes in commercial service were necessarily taken over last year by the armed forces. Probably most of you don't know that with half the planes, the air mail service has been carrying almost double the volume of mail that it carried a year ago."

High officials told *American Aviation* that the first three planes will go to Pennsylvania-Central, Delta and Western. Specific allocation of the second three had not been definitely decided as this issue went to press.

Release of the planes proved to be both encouraging and discouraging—encouraging because it represents the first equipment turned back, discouraging because only six were returned. Officials now pin their hopes on Walker's statement that "more may be available later in the year."

Six planes, although helping the situation, will not be enough to break nearly all the bottlenecks that now exist, according to Washington observers. Both CAB and the Post Office Dept. had been urging that 20 or more ships be released.

Post Office officials have pointed out that an additional round trip cargo flight on each transcontinental airline, plus added service on Eastern, Northwest and some other lines, is desirable, but that such improvement would necessitate 18 to 20 planes.

Need for more planes throughout the domestic airline system becomes more urgent every day. Priority business has been steadily rising and has reached unprecedented heights, creating a situation that must be corrected, airline officials point out.

At a banquet at Washington Airport on May 15, sponsored by the National Aeronautic Association, the development of air mail was praised in radio speeches by Postmaster General Walker, Secretary of Commerce Jesse Jones; Nelson Rockefeller, Coordinator of Inter-American Affairs; Rear Adm. John S. McCain, chief of the Navy's Bureau of Aeronautics; Col. E. S. Gorrell, president of the Air Transport Association, and Gill Robb Wilson, president of NAA.

President Roosevelt, through Secretary of Commerce Jones, expressed to the aviation industry "the appreciation of all the people of the United States for a job well done."

The President's message also stated that "commercial aviation has surrendered many of its peacetime rights to the necessity of war, and in doing so has made a great national contribution. With the dawn of peace, commercial aviation will have new and greater opportunities for which it will be all the better prepared by reason of the training and experience it is now getting."

The air show at the airport on May 16 attracted a record-breaking crowd. The Army Sikorsky helicopter was demonstrated, together with a Navy model of the same ship. Present also was Eastern Air Lines' autogiro, which two years ago operated regular air mail service between Camden Airport and the roof of the Philadelphia post office.

Al Williams, noted speed and stunt flyer and aviation writer, thrilled the crowd by putting his Grumman "Gulfhawk" through its paces. A Jap Zero, captured in the Aleutians, was flown twice during the afternoon; All American Aviation demonstrated its air mail pick-up system; an Army glider was towed from the field by a military transport plane, cut loose and landed, and an Army ambulance ship was loaded by an air evacuation unit.

Four Air Transport Command planes and a Naval Air Transport freighter were on exhibition throughout the afternoon.

Among those present at the air show were James Murray, pilot on the first transcontinental air mail, 1920, now president of the Aeronautical Chamber of Commerce; Otto Praeger, Second Assistant Postmaster General in 1918, and thus known as the "father of the air mail;" Maj. James C. Edgerton, who completed the first successful air mail flight between New York and Washington on May 15, 1918; Benjamin Lipsner, first superintendent of air mail; Maj. Gen. Harold L. George, commanding general, Air Transport Command; Capt. J. W. Whitney, chief of the Naval Air Transport Service; Col. H. F. Gregory, who flew the Army helicopter.

It Stands Still: Hovering in front of the control tower at Washington National Airport is the Army's Sikorsky helicopter. Occasion was the 25th anniversary of the air mail service. Only a small portion of the huge crowd that attended the air show is visible.

Air Mail Celebration

(A dinner and an air show were held at Washington National Airport on May 15-16 to celebrate the 25th anniversary of air mail service. The following photos were taken at the celebration by the CAA)

Left to right are Igor I. Sikorsky, inventor of the Sikorsky helicopter; Roscoe Turner, famous speed flyer, and Charles I. Stanton, Administrator of Civil Aeronautics.

•

Lieut. Col. Tex Hill, left, famed U. S. flyer who distinguished himself in the Chinese area, and Lieut. Col. Joseph Edgerton, AAF public relations, are shown at the banquet. Note Col. Hill's ribbons.

•

International air mail, flown in the plane that made the first mail flight for Colonial Airlines from Montreal many years ago, is received at Washington Airport. Left to right are Herbert Clark, Colonial pilot; Secretary of Commerce Jesse Jones; Postmaster General Frank C. Walker, and Sigmund Janas, president of Colonial.

•

Secretary of Commerce Jesse Jones talks with Maj. James Clark Edgerton, one of the first air mail pilots. Maj. Edgerton, brother of Lieut. Col. Joseph Edgerton (shown in second picture from top), completed the first successful flight between New York and Washingfon on May 15, 1918.

PROPELLERS
TWO BLADES ★ THREE BLADES ★ FOUR BLADES ★ SIX BLADES (CONTRA-ROTATING)
CONSTANT SPEED ★ VARIABLE PITCH ★ FEATHERING ★
OTOL AIRSCREWS LIMITED, ENGLAND.
Parent Companies: ROLLS-ROYCE LIMITED & THE BRISTOL AEROPLANE CO. LIMITED
Canadian Representatives: BRITIS AEROPLANE ENGINES LTD MONTREA

Braniff Gets Certificate For Amarillo-Denver Line

El Paso-San Antonio Ruling Deferred; CAL Application Denied

THE Civil Aeronautics Board on May 12 awarded Braniff Airways a 371-mile route from Amarillo to Denver via Pueblo and Colorado Springs.

Because Continental Air Lines now serves Denver, Pueblo and Colorado Springs, the Board ruled that Braniff flights into Denver must originate or terminate at Ft. Forth-Dallas or points south thereof. Braniff, however, is permitted to transport passengers between the Colorado cities.

The new route will not be opened until national defense requirements permit.

Continental Air Lines' applications for Pueblo-Amarillo and Hobbs-San Antonio were denied by CAB, as were Braniff applications for Amarillo-San Antonio and Amarillo-Houston. TWA's application for the latter line was also denied.

Air transportation between El Paso and San Antonio, as proposed by Braniff, is not required by the public convenience and necessity, said CAB, adding, however, that its denial is without prejudice to the filing of an application by the company for a certificate authorizing such service on a *temporary* basis.

Cites Vacation Trips

"The evidence in this proceeding establishes the fact that there is a community of interest between the Texas cities and the Colorado cities involved arising out of vacation travel, the petroleum industry and the agricultural and industrial characteristics of the two states," CAB said. "Likewise, the Texas Gulf ports represent the most accessible sea outlet for Denver and the surrounding territory . . . The circuity of the present air service between Texas and Colorado, especially in the case of Amarillo, is so great that it does not develop the potential air traffic indicated by the evidence."

Selecting Braniff as the carrier, the decision stated:

"The predominant flow of traffic which would be served is between Dallas, Ft. Worth, the Texas Gulf cities and Denver. This is substantiated by the data hereinbefore set forth with respect to air and rail traffic. Potential air traffic between Amarillo and Denver could be served equally well by either carrier, but traffic between Denver and Dallas-Ft. Worth and the Texas Gulf cities constitutes the primary factor for consideration.

"There is no doubt that a through one-plane service operated by one company would be more convenient for this travel. We have heretofore pointed out that through service is desirable where it can be secured, and that it is a significant though not controlling consideration.

"The Denver-Amarillo route would form an integral part of Braniff's system, offering service from Amarillo to the other Texas points served by Braniff and to Oklahoma City. Such an operation would afford a more convenient service to the traveling public involved than would a connecting service between two carriers at Amarillo, which would be the case in the event Continental operated the route. We have heretofore found that the difficulties attendant to the present connecting service at Wichita and the possibilities of missed connections are such as to prevent full development of traffic, and constitute one of the factors which have convinced us this route is required by the public convenience and necessity . . .

Sees Diversion

"Continental asserts that the award of a certificate to Braniff would have an adverse affect upon its system through diversion of traffic, especially on its route 43. This argument would have more merit if Continental were not an applicant, for if it were awarded the route there would also be a diversion from route 43.

"Continental contends that if awarded the route, it would be in a position to recover part of the losses it would sustain on route 43. However, we have heretofore pointed out that if air carriers are to be prevented from inaugurating improvements in existing services solely as a protection to a particular carrier or carriers, the development of air transportation will be retarded."

Justifying its action on the San Antonio-El Paso application, the Board said:

"The facts of record with respect to this route are not encouraging insofar as the present volume of prospective air traffic is concerned. Data of record concerning the number of passengers moving by existing modes of transportation . . . show only a small amount of traffic. Furthermore, the populations of the intermediate points between the termini of the route are very sparse. While the area is isolated and transportation difficult, and although we believe that the future will see a general increase in the use of air transportation facilities, we are unwilling to award a certificate for service over this route for an unlimited period of time under the present provisions of the law which might impose upon the government an extremely heavy burden in the form of mail compensation. If the carrier's forecast of traffic is not realized it is readily apparent that service can be maintained only if the deficit in commercial revenues is offset by mail compensation from the government.

Reviews Facts

"While these facts suggest the desirability of a limited or temporary certificate, during which period the traffic needs may be determined, under the provisions of the law we are not authorized to issue such a certificate in cases in which an application seeks only a permanent certificate. If the application by Braniff which is presently before us sought authority to conduct operations over this route for a limited period of years, we would have felt justified in issuing such a certificate . . ."

CAB Chairman L. Welch Pogue and CAB Member Josh Lee disagreed with the majority on this point, holding that an unlimited certificate should now be issued to Braniff for this service.

Historical Flight: For the first time in history, regular scheduled flights of a commercial airline were established at Wright Field, Dayton, a few weeks ago, when TWA operated into the field while repairs were being made at Dayton Municipal Airport. Operations continued until recently and were then transferred back to the latter field. Shown here, left to right, as the first flight at Wright Field landed, are Col. R. O. Brownfield, commanding officer at the field; John Collings, TWA vice president-operations, who served as captain; Vernon Gunn, Dayton traffic manager, and Robert Kail, TWA Dayton air express representative.

This Table Tells How Far You Can See from the Air

"How far can I see from the air?"

This question, asked of themselves by aviators and air travelers for many years, is believed to have been answered by the captains of the Pan American Airways System. They have worked out a "vision range" formula after answering for years, from their own knowledge, the multitudinous queries of Pan American passengers.

The formula:

"The range of vision from the air equals the square root of your altitude multiplied always by 1.225 miles. For example, at 10,000 feet it is possible to see 122.5 miles, since the square root of 10,000, which is 100, multiplied by 1.225 equals 122.5."

From	1,000	feet	you	can	see	39	miles
"	2,000	"	"	"	"	55	"
"	3,000	"	"	"	"	62	"
"	4,000	"	"	"	"	77	"
"	5,000	"	"	"	"	82	"
"	10,000	"	"	"	"	123	"
"	15,000	"	"	"	"	150	"
"	20,000	"	"	"	"	173	"
"	25,000	"	"	"	"	194	"

Colonial Names Officers

Colonial Airlines, Inc., announces that its board of directors have elected the following officers for the coming year: Sigmund Janas, president; E. S. Ridley, vice president; Branch Dykes, vice president in charge of maintenance and operations; E. Odenwalder, treasurer; and A. C. Dick, secretary and general counsel.

FROM "HAM" TRANSMITTER RIGS

TO INTER-PLANE COMMUNICATION

RELAYS BY GUARDIAN

★ **Today they are off the air . . . voices stilled . . . home-built rigs carefully covered. For most of yesterday's "hams" are lending their experience, knowledge, and ingenuity to the war effort . . . creating and perfecting new communication devices . . . the amazing new flight recorder, for instance . . . or Radar. But whether they work in a wartime lab or have their "office" in a Fortress, they are still close to one of their early friends—"Relays by Guardian".**

One of the newer developments is a multi-purpose aircraft radio relay pictured at the right. It is built in contact combinations up to three pole, double throw. Coils are available in resistances from .01 ohm to 15,000 ohms. At 24 volts DC it draws 0.12 amperes. This relay is also built for AC with a contact rating of 12½ amperes at 110 volts, 60 cycles. Standard AC voltage is 92-125 volts but coils are available for other voltages.

Aircraft Radio Relay
DC Model—Bulletin 345
AC Model—Bulletin 340

Write on your business letterhead for these new bulletins: B-8, Six pages of Aircraft Contactors—195, Midget and Signal Corps Relays — B2A, Aircraft Relay — SC65, Solenoid Contactor.

GUARDIAN ELECTRIC

1608-G WEST WALNUT STREET CHICAGO, ILLINOIS

A COMPLETE LINE OF RELAYS SERVING AMERICAN WAR INDUSTRY

☆ FLEETWINGS takes up the challenge ☆

When the Axis threw down the gauntlet of war, Fleetwings was already in a "fox hole" of production . . . and prepared to help hurl back the challenge into the teeth of those who threw it.

But that's ancient history!

Today, Fleetwings' production of planes and plane parts is greater than ever . . . and still growing! There's not a day, not an hour, not a minute that does not see its quota of Fleetwings-built vengeance rolling off our assembly lines.

Working with stainless and other steel alloys, with aluminum, with plywoods . . . Fleetwings builds trainers for the Army's eaglets. For full-fledged eagles, Fleetwings builds plane parts . . . wings, fins, ailerons, flaps, fuselage sections, hydraulic equipment, and more. Incorporated into numerous American fighting planes, these parts are in service on every air front . . . paying back the Axis in kind.

But helping to win today's sky battles is not all. Fleetwings is also preparing to serve in the battles for the Peace. Even now, in the designing and drafting rooms, plans are being pushed that will have tremendous bearing on that future when the "dogs of war" shall be no more.

(Plant No. 1)

FLEETWINGS

Division of Kaiser Cargo, Inc.

BRISTOL • PENNSYLVANIA

PCA Proposes Trans-Atlantic 'Seadrome' Route to England

A proposal to fly between the United States and Great Britain using "seadrome" landing bases 800 miles apart has been presented to the Civil Aeronautics Board by Pennsylvania-Central Airlines. Airlines of all nations would have access to the three $10,000,000 seadromes, according to C. Bedell Monro, PCA president.

"No monopoly is sought or desired," said Monro. "The seadrome bases will be made available to all companies and all nations that qualify. This is done so that the progress of post war aviation will not be impeded and so that America can truly be said to be in a position of collaborator and not competitor in trans-oceanic air travel."

Economy Seen

Criticism of seadromes, widespread in the past, will subside when it is seen how easily and economically planes which are flying over land today can fly the sea drome route, Monro predicted.

"Flying across the oceans does not change the economic limitations of flight distance," he said. "It should be apparent to everyone that to operate air transport services between America and Europe with any semblance of economic sanity, the flight distance without refueling cannot exceed the definite limits that apply to over-land flying.

"Without air bases which permit refueling within these limits, over-oceanic airways could not hope to attain—even with large governmental subsidies—a fraction of the value to commerce and industry that an economically sound, self-supporting air service can render.

"The only reason certain air bases are now used, even though the route is hundreds of miles longer than already long steamship routes, is because they permit carrying more passengers through refueling. The seadrome route will not only provide America's only bases in the Atlantic, but will shorten considerably the established ocean air routes as well."

The 800 mile hops between seadromes, as specified in the project, will mean "vastly increased" weight carrying capacity for planes, Monro claims. He points to recent payload surveys showing a 12,000 lb. payload for an 800 mile range as against 7,000 lbs. for a 2,000 mile range.

Refuelling at Sea

"In order to operate an airline economically across an ocean, it is essential to have intermediate landing stations for refuelling at sea," he declared. "The seadrome route is the first practical method to make this possible. Not only is it easy to supply fuel to these bases by tanker; it is considerably cheaper to deliver gasoline to ocean bases than to land bases. For one thing, there are no state taxes to contend with."

Pennsylvania-Central planes could take-off for an ocean base today with only normal preparation, said Monro.

"Give us five minutes and we could have a plane bound for a seadrome," he said. "No new plane designs are necessary, and the airplane of tomorrow, regardless of its efficiency, will be able to fly oceans even more efficiently because of seadromes."

Discuss Seadromes: Edward R. Armstrong, left, construction engineer who created and developed the seadrome, explains the working model of his "floating island of steel" to C. Bedell Monro, president of Pennsylvania-Central Airlines.

The particular drome PCA hopes to use on the proposed Atlantic route is the invention of Edward R. Armstrong of Philadelphia, Pa. Each unit would be about one mile long and 380 feet wide at the widest part. The runway would be 70 feet above the ocean and would be supported by many vertical buoyancy tanks, each with a draft of 160 feet below the ocean's surface. Each vertical tank, or leg, would have its own center of gravity, thus stabilizing the structure so that there would be no roll nor wave.

Shifts With Wind

The seadrome would have its own propulsion equipment, enabling it to shift with the wind, or move out of fog and ice zones at a speed of eight knots per hour. Thus, all hazardous routes would be avoided. It could, however, be anchored. Personnel of from 30 to 50 would be required to operate each unit, including hotel facilities.

The Sun Shipbuilding and Drydock Co. will build the three seadromes, entirely of steel, as soon as materials are available, Monro said. The United States Steel Corp., Wirth Steel Co., Belmont Iron Works, and John A. Roebling Co. will be associated in the project. Each unit, weighing 64,000 tons, will be constructed in many sections, for mobililty during assembly, and flexibillity, as to size, after completion. Construction of each will require five months.

The project will be financed by private capital, with several influential industrial organizations interested, Monro added.

EAL, Braniff, MCA Win Safety Awards

Eastern Air Lines has won the National Safety Council's 1942 aviation safety award for Group A airlines. Companies in this group operate 100,000,000 or more passenger miles a year.

The council makes awards each year on the basis of official records of the Civil Aeronautics Authority. Winners in other groups for 1942 follow:

Braniff Airways, Inc., Group B, 10,000,000 to 100,000,000 miles.

Mid-Continent Airlines, Inc., Group C, fewer than 10,000,000 miles.

Certificates of safe operation were awarded to eight other airlines which also had no fatal accidents in 1942. They were:

Chicago and Southern Air Lines, Inc.; Delta Air Corp.; Pennsylvania-Central Air Lines Corp.; Catalina Air Transport; Continental Air Lines, Inc.; Inland Air Lines, Inc.; National Airlines, Inc.; and Northeast Airlines, Inc.

Southwest Airways Asks Three Helicopter Lines

Southwest Airways Co. has filed application with the Civil Aeronautics Board for permission to operate, on either a temporary or permanent basis, three helicopter routes for mail and property.

Routes sought are (1) Lockheed Air Terminal to Santa Ana, Calif., via Burbank, Glendale, Pasadena, S. Pasadena, Alhambra, San Gabriel, Monterey Park, E. Los Angeles, Montebello, Whittier, Downey, Vultee, Bellflower, Norwalk, Fullerton, Anaheim and Orange, a distance of 64 miles; (2) Lockheed Air Terminal to Long Beach via Los Angeles, Vernon, Florence, Huntington Park, Maywood, Bell, Southgate, Lynwood, Compton and Signal Hill, 40 miles, and (3) Lockheed Air Terminal to San Pedro via Van Nuys, N. Hollywood, Hollywood, Beverly Hills, W. Los Angeles, Santa Monica, Venice, Culver City, Inglewood, Hawthorne, El Segundo, Manhattan Beach, Hermosa Beach, Redondo Beach, Torrance and Wilmington, 61 miles.

The company states that it proposed to use Sikorsky helicopters in the operation.

Southwest recently opened a new office at 204 S. Beverly Drive, Beverly Hills. James G. Ray, vice president, is in charge.

United Reports $982,779 Income in 1st Quarter

A first quarterly net income of $982,779 was announced May 14 by United Air Lines. It is equivalent to 65 cents per share of stock outstanding, compared to nine cents per share, or $143,002 net, for the corresponding period of 1942.

In a quarterly report, W. A. Patterson, president, revealed that commercial operating revenues were 27.7% greater than in the first quarter of last year, while operating expenses were 8.6% less. The company operated 20.7% more revenue passenger miles, 97.6% more mail ton miles, and 16.1% more express ton miles during the quarter than in the same period of 1942. At the same time, revenue plane mileage flown decreased 18.8%.

Increased Travel Insurance Offered by Canadian Lines

Since May 15, air travel insurance has been offered by all of Canada's airlines under a plan announced by G. Shannon Grover, general manager of Stewart, Smith (Canada) Ltd., Montreal, subsidiary of Lloyd's of London. The participating companies include Trans-Canada Air Lines, Canadian Pacific Air Lines, together with their subsidiaries, and Maritime Central Airways.

"During the past, air travel insurance has been available to Canadian travelers only on certain routes, and then only for amounts up to $5,000," Grover said. "To buy substantial amounts has been a complicated procedure. The amount of insurance available has been increased fourfold to $20,000 when purchased in any airline office in Canada, and will cover the passenger on any regular, special, or chartered trip over any scheduled airline route in North America, which includes Alaska, the Canadian Northwest Territory, Newfoundland, Bermuda, and the West Indies.

Grover

"In calculating the rates, the underwriters have based them on the number of hours a trip is scheduled to take, but in actual practice, regardless of how long the trip may actually take, the insurance remains in force until the destination is reached," Grover explained. "The passenger is therefore able to complete the details regarding his insurance at the start of his journey, including all side trips, circle tours, and round trips.

"The minimum premium for $20,000 insurance is $1.00; therefore, an aircraft carrying, for example, 14 insured passengers, presents a total risk of $280,000, which the insurers are willing to undertake for the small premium of $14 on a four-hour trip. Miners or prospectors flying from Edmonton to Copper Mine or Aklavik on one of the scheduled trips made by Canadian Pacific Air Lines can obtain the same amount of insurance at the same basic rates as the business man in the United States would on a short trip from Washington to New York.

"Insurance is not limited to actual flying but also provides the passenger with protection while riding in airline land conveyances provided to take him to and from airports.

"Another feature is that it allows passengers to stop over at cities enroute as often as they wish to do so without in any way affecting their insurance, so long as the entire trip is completed within 30 days."

March Accidents

Seven fatal accidents in non-scheduled flying were reported to the safety bureau of the Civil Aeronautics Board during March. Investigation was completed on three of the accidents.

Airline Commentary

A well-deserved pat on the back is in order for the National Aeronautics Association and the Civil Aeronautics Administration for putting on a swell show in celebration of air mail's 25th anniversary . . . On May 15 there was a super banquet at Washington National Airport, followed on Sunday by a real honest-to-goodness air show, which was not only entertaining but educational . . . To our mind, the air show was the best part of the weekend, and Charlie Planck of the CAA, we understand, deserves the credit . . . Biggest news of the weekend was announcement that the Army is turning six planes back to the airlines . . . Airline men wish the news had been even bigger . . .

●

Oral arguments before the Civil Aeronautics Board are always good for a laugh when the top-flight aviation attorneys start throwing the English language around . . . We attended the argument last fortnight on the eastern seaboard cases involving Eastern, National, Seaboard, Pennsylvania-Central and Colonial . . . Seth Richardson, Colonial's attorney, drew some laughs with the remark that the argument was being held so long after the actual filing of applications in the case (some 18 months ago) that he felt as though he was "discussing affairs of my childhood" . . . His description of PCA as the airline that is "wandering around in the south like a lost soul" also drew laughs, even from the PCA men present, who realized that it was all in fun . . .

●

Two important additions to the domestic airline system were made last fortnight by CAB . . . Delta received permission to operate between New Orleans and Shreveport, which will result in direct service between New Orleans and Dallas-Ft. Worth . . . And TWA was granted the right to serve Los Angeles on its route 47 . . . This decision caused many raised eyebrows, not only because it establishes direct competition for United between Los Angeles and San Francisco, but because the route had originally been recommended for Western Air Lines . . . Which all goes to prove that the Board sometimes differs with its examiners . . . One of the Board's hottest cases is due out any minute now, and will probably be out by the time this issue is in the mails . . . It involves applications of United and TWA for service into Washington . . . What's your guess? . . . We have our guess written out on a piece of paper . . . We'll tell you next time if we were right . . .

●

A smart stunt by Pennsylvania-Central is the naming of towns along its routes as "Victory Cities" . . . The front cover of each month's timetable is given over to a different city, with very attractive art work by Jim Berryman, of the Washington Star . . . Birmingham was the American Victory City for May . . .

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In this year of victory gardens, TWA is taking the forward step of offering prizes to its employes who raise the best produce . . . In addition, the company is furnishing free literature and advice on such subjects as canning, fertilizing, use of insecticides, etc . . .

●

"Now it can be told" stories about the airlines' part in the war effort continue to trickle out, many months after they happened—for reasons of military security . . . Latest one told was about a rush job the airlines did on the day after Pearl Harbor, flying 200 FBI men to the west coast . . . Many more such stories will be told some day . . .

●

A story which ran in this magazine many weeks ago has now been officially confirmed . . . J. W. Miller, president of Mid-Continent Airlines, announced last fortnight that "negotiations on the proposed merger of this company with Northwest Airlines which have been in progress for several months have been terminated" . . .

●

Plans being made by the airlines to accommodate the influx of new women employes are interesting . . . United, for instance, has started to use women's counsellors as pioneered successfully in aircraft factories . . . The first counsellor is now at work in Cheyenne and others will be located in principal stations along the system . . . Mechanical lifting devices in cargo handling are designed to aid women cargo clerks . . . Most interesting is the fact that shopping services will be set up to accommodate housewives in concentrated areas . . . Russell F. Ahrens, UAL director of personnel, told our west coast representative recently that 38% of all UAL personnel are women . . . This compares with less than 15% before Pearl Harbor . . .

●

As reported last issue, plans for CAB's investigation into the feeder-pickup situation are progressing . . . It can now be reported that approximately 75 persons have so far expressed an interest in the proceedings . . . The examiners are looking for still more . . .

E. B.

Beechcrafts at work

No. 4 OF A SERIES

The Beechcraft biplanes had been tested in service prior to the war in 23 foreign countries and in all parts of the United States. The operations in which they were engaged extended from Aklavik, north of the Arctic Circle, to Little America on the Antarctic Continent, and included all variations of climate, terrain, and usage. They operated with wheels, seaplane floats, and skis. Their owners were enthusiastic about their performance under all conditions.

With the advent of war, most of the civilian-owned Beechcraft biplanes of recent manufacture were taken over by the Government Services and the entire new production of the factory went directly to the Army and Navy. These Beechcrafts now serve as the aerial workhorses of our Air Forces, not only at home but also behind our far-flung battle fronts. Their high cruising speed, of up to 200 miles per hour, plus their ability to land at low speed in small, improvised fields, makes them a practical and useful vehicle for everyday use. Their ruggedness of construction reduces the necessity for spare parts to a minimum; and their economy of fuel consumption is valuable where fuel is hard to get.

Eventually these airplanes will be available again to civilian users and the experience gained in military operations will make them more valuable than ever. We regret that we cannot fill the orders of our many friends until the end of the war.

Beech Aircraft

CORPORATION

BEECHCRAFTS ARE DOING THEIR PART

WICHITA, KANSAS, U. S. A.

5 Airlines Present Arguments For Atlantic Seaboard Routes

By WILLIAM THOMPSON

Spokesmen for five airline companies which have applied to the Civil Aeronautics Board for Atlantic seaboard routes, presented oral arguments before the Board from May 17 to May 20. The companies seeking routes are Colonial Airlines, Inc.; Eastern Air Lines, Inc.; National Airlines, Inc.; Pennsylvania-Central Airlines Corp.; and Seaboard Airways, Inc.

The arguments were presented six weeks after CAB Examiners Francis W. Brown and Lawrence J. Kosters had recommended that National Airlines be granted a certificate for Jacksonville-New York, via Charleston, S. C., Wilmington, N. C., Norfolk, and Philadelphia, for persons, property, and mail; that National's AM-31 (Jacksonville-Miami) be extended to include West Palm Beach as an intermediate point between Tampa and Miami; but that the company's other applications in this proceeding be denied.

Examiners' Report

The examiners had made the following recommendations with respect to Eastern Air Lines' application for new routes:

(1) Certificate for AM-45 (New York to San Antonio) should be amended to include Raleigh, N. C., as an alternate intermediate point to Greensboro, N. C., between Richmond, Va., and Charlotte, N. C.; (2) certificate for AM-6 (New York to Miami) should be amended to include Columbia, S. C., as an alternate intermediate point to Charleston, S. C., between Raleigh, N. C., and Savannah, Ga.; (3) certificate for AM-40 (Tampa to Nashville) should be amended to extend its present operations from Tampa to Miami; (4) other applications in this proceeding should be denied.

The examiners had recommended denial of Seaboard Airways' application for a route between New York-Miami-New Orleans, for property, persons, and mail; Colonial Airlines' application for a route from New York to Nassau; and Pennsylvania-Central Airlines' application for amendment of its AM-51 (Norfolk to Knoxville) between Rocky Mount, N. C., and Jacksonville, Fla., and between Greensboro, N. C., and Jacksonville, Fla.

The oral arguments revolved largely around charges by Seaboard, National, Colonial, and PCA that Eastern Air Lines is a "monopoly" on the east coast, and counter charges by Eastern that the company is being "indicted" for its success.

"The other applicants have sedulously cultivated and endeavored to propagate the idea that Eastern has conducted an unduly successful operation on Routes 6 and 5 and that for some unexplained reason should be indicted for its success," said Smythe Gambrell, counsel for the company. "They have indulged in a whispering campaign that Eastern is a monopoly.

"Let's get away from proof by epithet and look at the facts. Eastern's Route 6 is subject to more drastic competition than any other major route in the nation. If National's proposed seaboard route were to be authorized, 34.2% of Eastern's service to the pairs of cities on its Route 6 would be duplicated. At present, American Airlines' transcontinental route has 12.44% duplication, Transcontinental & Western Air, 13%, and United Air Lines, 6.43%."

Gambrell said that if Eastern is unduly successful it is because the company operates at from 12 to 15 cents less per mile than comparable companies.

William I. Denning, counsel for National, warned the Board against permitting Eastern to "entrench itself along the seaboard." He predicted that Eastern would divert trips 3 and 6 from Washington to satisfy demands of the new routes. He called this "robbing Peter to pay Paul."

"Public interests are not served in this way," said Denning. "Eastern has shown an indifferent attitude toward public demands. Her traffic potentialities have not been fully developed. Complete monopoly makes it possible for her to get away with inadequacies."

He charged Eastern with failure to operate sleepers on Route 6 because there is no competition, yet operating sleepers on Route 5 where there is competition.

"Such competition as National proposes follows a pattern from which air transportation in this country was developed," Denning declared. "Only National's proposal will provide a balanced competition along the seaboard. The other proposals will have little competitive effect."

He dismissed Seaboard from his argument "because this company was conceived by a railroad receivership."

Leslie Craven, counsel for Seaboard, outlined the plan of his company to establish a broad air cargo service. He deplored the fact that the CAB examiners had failed to explore the possibility "that Seaboard is peculiarly able to handle air cargo."

Reading from the brief filed with the Board when the company applied for a coastal route, Craven said Seaboard proposes to establish an air cargo service, independent of the Railway Express Agency, charging rates 75% less than than those now charged.

Proposes Reductions

"This would provide the natural competition between the air and the rail service which the public interest requires," he said. "Instead of the 85 cents per ton mile presently charged by the airlines, Seaboard proposes to charge 20 cents per ton mile. There is a pressing demand for such a service in Eastern's territory."

Craven scored Eastern for "having vested the conduct of the air express business in the Railway Express Agency, an agency controlled by its competitors, the railroads."

"As a result, the air cargo traffic in the territory involved by the seaboard applications is controlled by a monopoly which operates in restraint of trade, at a rate level which strangles the business," he declared.

Discounting Eastern's claims that efficient management is behind its high earning power, Craven said:

"Eastern has no geniuses, no one pulling rabbits out of a silk hat, but it has good weather conditions on its side and it operates in the richest territory in the United States.

"Incidentally, here are some reasons why Eastern earns so much," he added. "In 1941 her total sales expenses for Routes 5 and 6 were 3.81% of her passenger revenue; American Airlines' expenses were 4.99% for Route 18 and 5.48% for the entire system; United's were 6.41% for the system; TWA's, 6.09%.

"Eastern's per mile traffic and advertising costs for 1941 were 7.09 cents, as against 8.28 cents for United, 10.29 for TWA, and 9.55 for American."

Counsel for Colonial Airlines, Seth Richardson, told the Board that now is the time to decide whether there will ever be competition on the eastern seaboard. He warned that unless Colonial's application for a route from Montreal to Nassau is granted "the door will be closed" to a U. S. carrier on that route, and, in the future, there might be a British line opened.

If the board should decide that Eastern Air Lines should not have competition, Colonial will accept a route from Montreal to Charleston, S. C., Richardson said, adding that the company is willing to service Jacksonville and Miami if ordered to do so.

Henry Friendly, council for Pan American Airways, made a brief appearance in opposition to Colonial's proposed Montreal-Nassau route.

Cites War Demands

"This is the weakest case the Board has ever had," he said. "Colonial has woven romance around Nassau, but has forgotten that the government is trying to discourage tourist traffic. Traffic to Nassau is highly seasonal. Seventy per cent is between December and April, and most of the travelers spend the bulk of their time in Florida. Charleston, a key point in Colonial's proposed route, is largely untouched."

Stanley C. Morris, counsel for Pennsylvania-Central, predicted that representatives of "smaller cities" soon will call upon the CAB to end discrimination against them in favor of large cities on monopolistic routes.

"Soon the initiative in these route discussions will be taken by the smaller cities," he asserted. "The need for service between these points is indispensable to the growth of transportation."

"Eastern has a lot of schedules, but closed-door service to the smaller cities," he said. "Her schedules originate in large traffic centers. She is distracted by New York and Miami traffic."

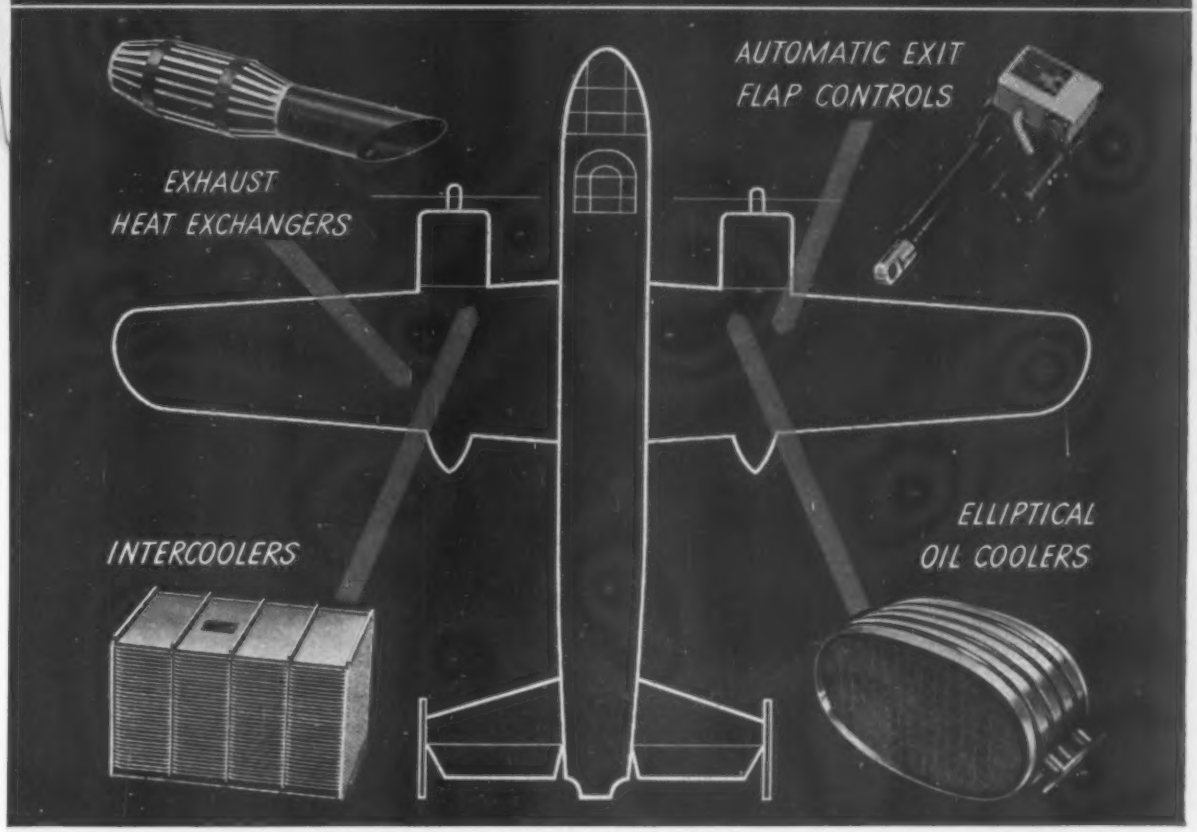
He warned the Board that Eastern may become "an impregnable monopoly, astride the rich seaboard area like a Colossus."

Public Counsel James M. Verner argued that the applications of National Airlines and Seaboard Airways should be denied "because the competition they would create would be undesirable."

"Competition along Eastern's routes would create unnecessary and wasteful duplication of equipment, personnel, and expense, as well as service," he said. "Seaboard's proposed route almost completely blankets Eastern's New York to Miami and New York to New Orleans routes."

He explained that in arriving at his conclusions, the number of airports duplicated by competing airlines was not so much a criterion as the size of the cities served.

Four AiResearch developments . . .



They *boost altitudes . . . increase speed . . . provide greater safety for* U.S. *aircraft*

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Further information on these and other AiResearch developments is offered to all U.S. aircraft manufacturers.

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Airline Personnel

Leaf Smith

Traffic

Joseph W. Morris, traffic representative for TWA since 1941 in Los Angeles, succeeds **Ernie Smith** as dtm at San Francisco.

Ralph L. Heininger, with the company since 1937 and acting general traffic manager in Chicago since May, 1942, has been made full general traffic manager in that area for Chicago and Southern Air Lines.

Robert T. Phinney has been promoted from Chicago dtm to northern division traffic manager for Braniff Airways, with supervision of traffic in Chicago, Kansas City, Wichita, Oklahoma City, Wichita Falls and Amarillo.

George E. Leaf, Northwest Airlines' first paymaster, has been appointed paymaster in charge of the entire payroll and timekeeping system and will maintain permanent supervisory offices in Minneapolis-St. Paul.

Miscellaneous

Ernie Smith, veteran dtm for TWA at San Francisco, has been made assistant to traffic vice president V. P. Conroy, and will handle public relations in the San Francisco area.

George F. Held, former Associated Press reporter at LaGuardia Field, succeeds **Robert I. Robinson** as eastern regional manager of TWA's public information department, with offices in Manhattan's Airlines Terminal Building. Robinson has been named assistant to the general traffic manager in Kansas City.

Phinney Heininger

New Orleans-Ft. Worth Route Awarded to Delta Air Corp.

Air service between New Orleans and Ft. Worth-Dallas is required by the public interest and will be operated by Delta Air Corp., the Civil Aeronautics Board announced May 18.

The service, which will not start until national defense permits, was made possible by awarding Delta permission to operate between New Orleans and Shreveport via Baton Rouge and Alexandria. Delta now flies between Shreveport and Ft. Worth-Dallas on route 24 (Ft. Worth-Dallas-Savannah).

In the same decision, the Board granted Eastern Air Lines permission to serve Lake Charles, La., on its route 5 (New York-Brownsville).

Applications of Chicago & Southern, National, Eastern and Braniff for routes into New Orleans were denied.

There is a "close community of interest between Shreveport and New Orleans . . . and a well defined need for north-south air transportation in the state of Louisiana, connecting the cities of New Orleans, Baton Rouge, Alexandria and Shreveport," the Board found. "There is also a strong community of interest between Ft. Worth-Dallas and New Orleans arising from industrial and commercial relationships and from the fact that New Orleans is one of the port gateways for these inland cities."

The primary need in the case is for service between New Orleans and Ft. Worth-Dallas via Shreveport, CAB pointed out. "It is therefore desirable that a local carrier such as Delta be chosen for the purpose of serving these cities.

"Delta's past history has been that of a local operator with through traffic constituting a factor of secondary importance. Its success or failure upon the proposed route will depend upon its developing local traffic between, and in serving the needs of, points on the route. Furthermore, the selection of Delta would reduce to a minimum the diversion of existing business from other carriers."

Delta, the Board's decision said, "by a 289-mile extension from Shreveport, is the only applicant herein that can provide that local service without uneconomic duplication of existing service. The 500-mile routes proposed by National, Braniff and Chicago & Southern would parallel Delta's route 24 between Shreveport and Dallas-Ft. Worth, a distance of about 218 miles. These applicants concede, and the record establishes, the fact that there is no need for additional service between Shreveport and Dallas-Ft. Worth, and each applicant expressed a willingness to accept a certificate prohibiting the transportation of local passengers between Ft. Worth-Dallas and Shreveport.

"Authorization of a competing service between Ft. Worth-Dallas and Shreveport by any of the applicants other than Delta would subject it to the loss of part of its Shreveport and Ft. Worth-Dallas traffic in addition to the loss of all of its New Orleans and Ft. Worth-Dallas and the New Orleans-Shreveport traffic it presently carries.

"Upon the basis of traffic data available at the time of the hearing Delta estimated that diversion would be more than $60,000 annually whereas the diversion from any of the other carriers would not amount to more than one-fourth of that amount.

"Thus, it is apparent that Delta would suffer much greater diversion of traffic than would any of the other applicants herein. While this is not the controlling factor, nevertheless it should be considered in selecting a carrier."

CAB Member Josh Lee, while concurring in the award of a Lake Charles stop to Eastern, dissented on the award of a route at this time to Delta. The case should be deferred, he said, until the Board has had an opportunity to consider the applications of Mid-Continent and Kansas City Southern for Kansas City-Tulsa-New Orleans service.

TWA Route

(Continued from page 48)

conduct its operations primarily in the interest of through traffic we have heretofore concluded that there has been no showing of inadequacy in the United service between Los Angeles and San Francisco and although certain benefits might be expected to accrue to the local traffic from Western's service over that of TWA such benefits are, we believe, outweighed by the advantages of the TWA service to through traffic.

"Western believes that if authorized to inaugurate the proposed service it would be placed in a stronger relative position among the air carriers and would be fortified in its efforts to function as a strong independent carrier in the area west of the Rocky Mountains. However, the disadvantages under which Western would operate cause considerable doubt that authorization of its proposed operations would place it in any more favorable position from the standpoint of over-all strength than it now holds. Western would have no advantage over United as to any traffic moving over the segment and it is doubtful that it could attract any substantial part of the traffic to and from points north and east of San Francisco on United's routes Nos. 11 and 1."

PAA Completes 4 Years of Trans-Atlantic Flying

Pan American Airways celebrated the fourth anniversary of its transatlantic Flying Clippers May 20. On that date, in 1939, the first of a fleet of 42 ton Boeing planes took off from New York bound for Europe on a flight that marked the opening of the first regularly scheduled air transport service across the Atlantic.

In four years, the Clippers have flown more than 6,862,000 miles over the transoceanic route. They have carried more than 44,000 pasengers and 100,000,000 pieces of mail in 1,400 crossings. Since United States entry into the war, Clippers have flown more than 1,700 tons of urgently-needed express.

IT'S a vital role the Piper HE-1 Ambulance Plane is playing . . . a role that is saving many American lives! Landing in small fields where most planes could not operate, the "Air Ambulance" picks up a casualty and carries him, comfortably enclosed under the plane's hinged turtle deck, to a base hospital. It transports him with speed that often means the difference between life and death.

Built especially for the Navy, it adds another page to the story of services rendered our Armed Forces by Piper Cub planes. The important parts played by this "Air Ambulance" and the famous Piper L-4 "Grasshopper" daily bring victory nearer!

And, when peace comes, the lessons learned and the developments made during this war will combine to bring you a superb peacetime Piper Cub plane. In it, you'll fly to your favorite vacation spots and streamline your business trips. Then small airports and highway landing strips will dot the country. And, light airplanes will dominate the air just as popular-priced automobiles dominate the road!

FREE BOOKLET ON HOW TO FLY. Send today for your copy of the easy-to-understand booklet "You, Too, Can Fly!" If you also want the full-color Piper catalog, enclose 10c in stamps or coin for postage-handling. Piper Aircraft Corporation, Dept. AA63, Lock Haven, Penna.

16mm SOUND FILM—"The Construction of a Light Airplane" now available. For point of nearest distribution, write the producer: Supervisor, Audio-Visual Aids, Extension Services, Pennsylvania State College, State College, Pennsylvania.

PIPER *Cub*

POINTS THE WAY TO WINGS FOR ALL AMERICANS

Need for Organizational Unity Stressed

Personal Liaison Will Be Needed as Lines Grow, Writer Says

By E. J. FOLEY

THE peace ahead promises a dominant role in our industrial picture to air transport operation. By this token we may expect to see gradually increasing numbers of personnel connected with the industry.

A normal outgrowth of this expansion, already evidencing itself in the larger airline operations, is a progressively wider separation between administration and operation. Though normal, this potential isolation is at the same time a problem, unforgiving of neglect. Air transport operators must close all such gaps, physical or "mental," with cooperating conductors, unless they do not admit the dangers of sparking.

Foley

Let us first take a look at the factor of physical separation. It is fortunate that this element of separation is of the lesser order of importance since present practice makes it unavoidable. Airport building height restrictions and the positive limitation of appropriate airport areas preclude the possibility of our housing ever-increasing numbers of people at the field. The logic or operation prompts us to lop off those essential but self-sufficient departments and quarter them possibly in the metropolitan area.

Interruptions Costly

We have all seen working examples of this technique and believe it is generally agreed to be profitable nearly as often as practical. The functions of such departments as Treasury and Purchasing may be carried out at a higher productive rate if we free them from the interruptions and distractions that may exist in the airport offices.

But right here we face our first need for a connecting link. It is of prime importance to the entire organization that the duties and responsibilities as well as the organizational and functional tie-in of the independent department be clearly defined and thoroughly publicized. It is no foolish statement, but a warning, when we say that such a department can be forgotten. We have seen it happen.

Physical separation may lead to the ignoring of the "separated" in the mental processes of the remaining. The functions of the separated group may begin to be presumptuously assumed by other departments in the interests of "expediency." The result of such unintentional usurpation may run the gamut from interdepartmental hard feelings to expensive legal involvement.

In many instances where the department is physically separated from the large body, it is necessary to retain an individual or a sub-staff at the airport for on-the-spot liaison and service. Where such procedure is practiced, we recommend that the department head consider rotating all personnel through their subgroup.

Two reasons prompt this suggestion. First, physical removal from the scene of action gradually deadens alertness, sympathy and understanding of the pressing problems of on-schedule operation. Secondly, new personnel who may be hired in the metropolitan area office will be extremely limited in the scope of their usefulness if they have no first hand knowledge of the basic operation of the carrier.

Field Work Important

The department heads or group leaders of these separated staffs should also keep in touch with field operations. Sound decisions presume full knowledge; full knowledge in turn, presumes close personal comprehension of or contact with all appropriate phases of the operation.

While treating the physical separation factor, we naturally encounter the problem of line-stations' staffs. In domestic operation, the "home office" liaison is desirable, necessary and practiced in the form of inspection trips, etc. But, let us project our thinking into the complexities added by over-ocean or international operation. In such operation, the rotation of personnel through each station every six months may be vital to efficiency and the importance of maintaining a "morale" flow of visiting main base personnel is accented.

We must remember that the requirements for personnel "service" are directly proportional to the distance of the station from home and civilization and the divergence in living conditions between the two points. *Maintaining domestic airline standards in a jungle means more than manpower.*

The foregoing gives us a few hints as to the possible costs of neglect or "mental separation" stemming from the logical, practical and unavoidable physical separations between individuals or groups within air transport operation. The way to eliminate these possible extravagances is by functional and personal liaison. Still more dangerous, simply by virtue of the fact that no physical separation exists, is the mental or disciplinary isolation that may grow between groups under the same roof.

The element which makes the mental separation so hazardous may be simply stated. It is the inability of those adversely affected to understand or appreciate the necessity for next-door location, and inconsiderate thinking or contradictory directing. Any such unfortunate situation perpetuated by neglect can be the greatest single demoralizing factor in the industry.

When organization size mushrooms, the terrific burden of detail may fall upon the department heads and their immediate assistants. Unless specific planning has provided policies, techniques, procedures and standards adequate to the increased staff, we may see the ludicrous picture of top management being so busy correcting errors as to make it impossible for them to concentrate on directions to eliminate the errors.

We have devoted these paragraphs to what you may call general philosophizing upon basic business practices. We point the attention of the air transport industry to these considerations not because they apply only to this single business, but rather because we have had an opportunity to see the airline grow from a "happy family" group until today when it is on the threshold of big business.

Techniques Needed

Before entering this stage of development, we must assure ourselves that the house is in order. The opportunities for rectification grow beautifully less as the swirl of business accelerates. This then is our purpose; to review certain corollaries of business progress for airline consumption. No mere "idea," no loose-jointed spasmodic efforts can tie our structures together. The circuit continuity must be assured by real, tangible techniques which breach every gap, physical and mental, that may come with rapid bursting growth.

Specific examples of the dynamite nature of our mental isolation will serve to round out our presentation. When we have 50 mechanics, our maintenance superintendent knows every man by his first name. Negotiations are direct, man-to-man and the shop is a friendly team. Now, we grow to 500. The superintendent

(Turn to page 70)

Test Chamber: This is the new bomber-nose test-chamber which takes aircraft and electronic equipment seven and one-half miles into the stratosphere. It is the development of engineers of RCA Victor Division of Radio Corporation of America, Camden, N. J.

Built of Rohm and Haas' transparent Plexiglas, it makes possible the complete altitude-test inspection of the radio apparatus by several engineers at one time and thus speeds inspection. It is actually the unfinished nose of a bomber and is four feet five inches base diameter. The plastic is less than one inch thick. Air tightness is accomplished by resting the chamber on a soft rubber ring.

Assembly Kit: A new assembly tool kit for use with Aeroquip standard hose lines and detachable fittings is announced by Aeroquip Corp., Jackson, Mich. Illustrated here, the kit is a compact, lightweight, portable unit. It contains a wood clamp for seven sizes of tubing. Seven mandrels and adapters for I.D. sizes from 1/8" to 5/8" are provided to assemble both short and long male and swivel type connections and to accommodate both AC and AN standard threads. It is claimed that the kit will considerably expedite shop and field application of the Aeroquip principle whereby hose line replacements are made simply by cutting the desired length of hose, detaching the fittings from the old line and assembling them on the new.

Industrial Safety Mask

Available in clear transparent or in pale green, where eye-fatigue is a factor, an industrial safety mask is made by DuBois Plastics of Detroit, Michigan from Celanese Celluloid Corp.'s plastic, Lumarith. It is distributed exclusively by American Allsafe Co., Inc., Buffalo, N. Y. It is said that the mask is so light as to require only a light elastic band for positioning. It may be worn over all types of eyeglasses comfortably and provides all-angle vision without exposing any top or side areas to particles. The device may be laid face down without scratching the eyepieces; however, a snap-in replaceable eye-piece is provided.

Liquid Seal Vent Valve

Designed and manufactured by the Conservation Equipment Corp., 624 S. Michigan Ave., Chicago, the Conser-Vent is a new liquid seal vent valve for installation on storage tanks. Its purpose is to minimize the evaporation loss of volatile petroleum products in storage and at the same time, protect the tank and contents against associated hazards of pressure and vacuum.

It has no mechanical parts; the principal operating units are: an oil seal which serves as a liquid "valve" and provides for all ordinary conditions; a movable bell which automatically relieves extraordinary pressure conditions and two entrainment separators which trap any oil particles that escaping gases may pick up and thus prevent depletion of the sealing liquid.

It is available in three, six and 10 inch sizes.

Arbor Presses

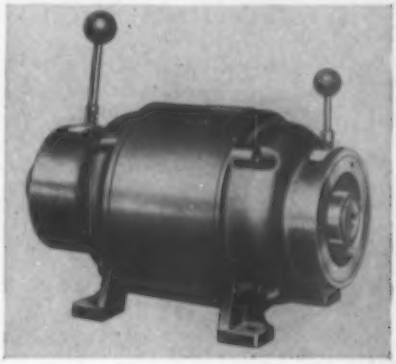
Lempco Products, Inc., 5682 Dunham Road, Bedford, O., announce new two and three ton Arbor Presses, made in both Wall and Bench types. Applicable for assembling, disassembling, bending and straightening, they are of a heavy I-beam design and the large machined table surface provides opening and support to accept work up to 14" diameter. The ram, pinion and pinion shaft are of selected quality steel and a snap ball check facilitates the "spinning" down of the ram. The wrought steel pressing block is notched for 1⅛", 1⅝", 1⅞" and 2" openings. Machined bearings are used to reduce friction and minimize moving-part wear.

Aero Tool Rivet Bucker

Aero Tool Co., Burbank, Cal., is producing a new bench-model automatic rivet bucker that makes riveting and bucking a single operation. The tool uses a standard rivet set synchronized with an air-cushioned bucker. It is claimed that the bucker is always aligned with the set and that the inaccuracies and labor of the manual control are eliminated.

Crozier Polishing Lathe

A new polishing lathe which incorporates a clearance hole through the entire machine, is being produced by the Crozier Machine Tool Co., of Hawthorne, Cal., successors to C. W. C. Corp. This new feature of the clearance hole permits polishing of a portion of a long piece of



work up to the maximum capacity of the lathe.

A hardened, double-face, cam-operating mechanism provides positive opening and closing of collet. Though the unit may be loaded with the spindle rotating, a switch and mechanical brake control make the machine adaptable to work which can best be loaded with the spindle at rest.

The entire motor is dust-tight, excluding all abrasive material. The lathe is offered in 14 models varying in hp capacity, arrangement for collets, chucks, etc.

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LONG ISLAND CITY NEW YORK

Col. Gorrell Urges Strong Postwar Mfg. Industry

Says Airlines Must Completely Re-equip

WARNING that it would be a "major tragedy were our nation to pursue a pennywise policy of planning for the absorption of military aircraft in our peace-time commercial system," Col. E. S. Gorrell, president of the Air Transport Association, emphasized in New York on May 19 that the United States must have a strong postwar manufacturing industry, both in the interests of commerce and the national defense.

A potential demand is available among American sources alone which, with proper planning, can assure the maintenance of a sturdy manufacturing industry, he stated.

Speaking before the Foreign Commerce Club of New York, Col. Gorrell also opposed any entrance by the government into the postwar aviation field, pointing out that "there lies ahead not only further technological improvement but also the great task of commercial development, the task in which American private initiative is peculiarly fitted to excel."

Discussing the Lea-Bailey bill (Civil Aeronautics Act of 1943), now pending in Congress, Col. Gorrell asserted that "it is inconceivable that the air space of our nation should be divided into 48 parts for the purpose of regulation, with the regulations of a 49th jurisdiction added on top of the 48 others."

In World War I, our manufacturing industry in its 19 months of war produced aircraft which exceeded by more than 50% England's production during its first 31 months of war, he pointed out.

'Virtually Forgotten'

"Yet in the immediate postwar years our aircraft manufacturing industry was virtually forgotten. To an alarming extent, the experience and the resources which it had acquired during the war were dissipated almost at once. Had it not been for the courage, the will, and the fighting hearts of a few brave men among our aircraft manufacturers, some of whom, happily, are still with us, reaping the honors which are their due, it may be doubted whether America today would be bringing to bear upon the most dangerous enemy in history the most effective air bombardment which man has yet conceived.

"One among other reasons that the manufacturing industry suffered so seriously after the last war was the failure to assure a reasonably immediate demand for those products. It was many years before the second-hand and converted military airplane had ceased to occupy a dominant place in America's peacetime skies.

"After this war is over the manufacturing industry will face the same danger which nearly destroyed it after the last war. It is imperative that steps be taken to assure that history will not repeat itself.

Conversion a Mistake

"It is probable that many types of military aircraft could be converted to inefficient commercial usage. It is even probable that in certain regions of the world such converted craft might be operated for certain purposes reasonably well. But, despite the appearance of immediate saving in initial cost, the attempt to utilize converted military aircraft on any appreciable scale in this country or on our principal world trade routes would be a gross mistake—a mistake not only from the standpoint of the essential interest of the nation in a sound aircraft manufacturing industry, but also from the standpoint of efficiency of transport operations and long-run economy. So far as bombers are concerned, we all know that they are built for a specific combat purpose and are ill suited to the needs of commerce. So far as military transport planes are concerned, we all know that many, if not all, of them will be obsolete in a very short time, and in any case will not be best suited for the kind of job which our air commerce should prepare itself to undertake at the earliest possible moment. It would therefore be a major tragedy were our nation to pursue a pennywise policy of planning for the absorption of military aircraft in our peacetime commercial system. What we must do is to plan so far as possible for complete new equipment throughout our system of air commerce.

"In the fall of 1940 the airline industry announced that between that time and the middle of 1942 it would need 500 new aircraft. It is amusing now to recall with what skepticism this announcement was met in many circles. One was left with the impression that the industry in this announcement was suffering from the effects of a pipedream.

"Today no one would question but that, had other needs not intervened, more than that number of new aircraft could have been supplied to the industry with benefit to all concerned.

500 'Insignificant'

"The industry has not been able as yet even to hazard a guess as to its likely equipment requirements during the immediate postwar years. It is certain, however, that the figure of 500 new aircraft which we were discussing in the latter part of 1940 will seem insignificant against the numbers of new aircraft which should be absorbed in our commercial systems after the war is over. A recent study made for the National Resources Planning Board estimates an increase in the traffic of the domestic airlines during the post-war years exceeding by more than twelve hundred per cent the traffic of those lines in 1940. This estimate undoubtedly errs on the conservative side. Even, however, with this conservative estimate, coupled with the great development in American flag air transportation in foreign and territorial commerce, and the substantial demand for aircraft which can be encouraged in the field of private and miscellaneous flying, it is evident that a potential demand is available among American sources alone which, with proper planning, can assure the maintenance of a sturdy manufacturing industry.

"In this connection it is especially satisfying to observe that the Lea-Bailey Bill, to which I have already referred, contains a provision for the substantial encouragement and promotion of private and miscellaneous flying which represents a new and important departure in our federal legislation. The bill, moreover, contains further provisions respecting contract carriers by air which, wisely administered, could go far to avoid undue resort to second-hand military aircraft, rather than new equipment, in the contract carrier field.

"So far as our airlines in domestic and foreign commerce are concerned, it is to be earnestly hoped that they will come out of this war with sufficient financial resources readily available so that they can immediately — literally without a day's delay—begin giving the manufacturers necessary large scale orders which will be so important to a proper transition from a wartime to a peace-time economy for the manufacturing industry. There has been some question from time to time in the past whether the policies adopted by the Civil Aeronautics Board would make it possible for the airlines to provide such orders to the manufacturers promptly and on sufficient scale. I do not have the time to discuss here the role of the Board in this matter, or to appraise the adequacy of its past policies. However, as I am sure the Board itself fully appreciates, its role in this respect is of critical importance and, in connection with the determination of matters such as depreciation policies, it is in the Board's

(Turn to page 68)

Aircraft Parts Members Show Gain Under Tanner

Increased interest in the association generally, and a steady rise in member firms (25 were admitted in April alone), have been the announced results since Charles L. Tanner was elected chairman last February of the membership committee of Aircraft Parts Manufacturers Association, west coast, Los Angeles, Cal.

Tanner

Tanner, manager of the Hard Chrome Engineering Company of Los Angeles, is assisted by committee members H. F. Bakewell of Bakewell Manufacturing Co.; E. R. Doak of Doak Aircraft Co.; E. L. Eason, Jr., of Eason Grinding Co., and W. T. Griffiths, Coast Centerless Grinding Co., all of Los Angeles.

Ball of Fire

Scourge of attacking aircraft, the power turret has proved a deadly weapon in the defensive armament of America's bombers. Best testimony to its effectiveness is the healthy respect that Jap and Nazi airmen have developed for it—through hard experience.

Special Delco motors, conforming to latest military specifications, are now being built to meet the power requirements for bomber turrets. Other aircraft equipment supplied by Delco Products includes Delco booster pump motors, transfer pump motors, windshield wiper motors and precision instrument components.

DELCO MOTORS

DELCO PRODUCTS *DIVISION OF* GENERAL MOTORS

Gorrell

(Continued from page 64)

power either greatly to facilitate or seriously to cripple the important contributions which the airlines can make to the maintenance of a proper aircraft manufacturing industry.

"Another essential means to the best development of America's aviation is, indeed, the Civil Aeronautics Board. We who have watched the Board's work most closely during its nearly five years' life have been deeply impressed by the ability and by the sincerity of purpose of its members and of its staff. The war has resulted, of course, in serious inroads upon its staff at the very time when its responsibilities should be even further increased. The immediate post-war years, which will thrust upon the Board still greater responsibilities will tax its capacities no less than will the industry itself be taxed by its problems. Indeed the supreme test of the Civil Aeronautics Board lies ahead. We in the aviation industry are confident that it will meet that test.

"But if the Board is to carry out its role, it is most urgent that the policy adopted by Congress in the Civil Aeronautics Act of centralizing in the Board responsibility respecting aviation policy should be strictly adhered to, both in letter and in spirit. Throughout Congressional consideration of the Civil Aeronautics Act it was emphasized in both Houses of Congress that the policy of dividing responsibility for civil aviation among several different government agencies, which had theretofore been followed should be finally terminated. With the inevitable growth of government regulation, nothing is more vexing, harassing and crippling to private industry than to be faced with divided jurisdiction among divers commissions, boards and bureaus of government. The policy adopted by Congress in the Civil Aeronautics Act is absolutely essential to aviation's best interest. Yet in recent months one has had the feeling in Washington that there may be a growing tendency which would result in the aviation industry having to deal once again with divers agencies in order to secure solution of a single problem.

"I do not mean to imply that there have been any suggestions for restricting the jurisdiction of the Civil Aeronautics Board, nor do I mean that other agencies of the government have been making any deliberate effort to usurp the function of the Board. But as aviation and its problems, though no more varied than in the past, becomes more apparent to more people, there is a natural tendency for additional agencies of government, oftentimes unthinkingly, to attempt to deal with matters which could be dealt with more properly and more satisfactorily by the Civil Aeronautics Board. Except for certain very limited functions necessarily lodged in the State Department, it is most earnestly to be hoped that all matters relating to civil aviation in the post-war period will be carefully centralized in the Civil Aeronautics Board in full accord with the spirit of the policy adopted by Congress in 1938."

(Turn to page 68)

Garden Tools to Plane Exhausts; Bathing Suits to Parachutes

When Southern California aircrafters think in terms of converted industries, two Los Angeles firms are always mentioned as possessing the "know-how" in turning from peace to war production.

Coincidentally, these two firms are figuring in current news. The first, Aircraft Components Inc., marked its second anniversary last month as the war outgrowth of Budwig Manufacturing Co., manufacturer of garden tools and accessories. The second, Cole of California, which last year turned from swim suit manufacture to parachute production, just received the Army-Navy "E" award.

Gilbert G. Budwig, World War I airman, put his peace-time operations aside and returned to aviation before Pearl Harbor to develop stainless steel exhaust systems for America's plane builders. During the past two years he has doubled plant facilities, opening a second factory in Kansas; increased employes 800% and kept production ahead of schedule, completing 600 separate contracts and 950 different jobs.

According to Budwig, successful conversion is brought about through personnel and cooperation of prime contractors. With key engineering authorities in stainless steel such as Paul V. Eskew, Robert R. Rotzler and A. R. Perl, and a training program within the plant, Aircraft Components now has facilities for design and manufacture from drawing board to airplane.

Among the short-cuts developed by plant engineers is "dish-pan construction" which represented 25% savings in manhours on work for the Constellation and development of projection welding which results in 40% increase over gas welding.

J. N. Combs is executive vice president and treasurer; Leonard Comegys, vice president, and Kenneth J. Wilson, contract manager. These men with Budwig formed the nucleus for the organization.

While at Cole of California, it was July 1942 when delivery of first parachute order was made to the Army Air Forces, marking a conversion in two months from stitching swim suits to parachutes. Today the company displays Army-Navy "E" award; production is up 500%; employes working on three full shifts have tripled in number.

Fred N. Cole is president; E. L. Green, plant superintendent of production; Ed Oser, company engineer, and Guy Ball, chief advisory engineer. Personnel, plant and machinery were entirely converted with additional cash to finance the changeover supplied entirely by the company.

Cole, like Budwig, places prime requisite for successful conversion upon personnel.

Short-cuts developed by Cole people have been made available to other parachute manufacturers. For instance, a machine invented at the plant for rigging shroud lines now takes two operators three minutes each while formerly five girls required 12 minutes each to perform the operation. Another company invention has done away with cutting and dipping exerciser chords by hand.

Conversion: Aircraft Components Inc., which in peacetime manufactured garden tools under the name of Budwig Manufacturing Co., now turns out stainless steel exhaust systems for U. S. warplanes. Shown here, left to right, are Gilbert G. Budwig, president of Aircraft Components and former head of the garden tool company, and Kenneth J. Wilson, contract manager.

Packard Ups Aircraft Engine Shipments, Sales

Shipments of Rolls-Royce aircraft engines and marine engines which are valued in excess of $1,000,000 daily are disclosed in 1943 first quarter announcement of Packard Motor Car Co., Detroit, Mich.

Sales of approximately $86,000,000 were reported for the period, on which net profit of $1,193,871 was realized, equal to eight cents each on 15,000,000 shares of no par capital stock. This contrasts with $1,120,323, or seven cents, in the same period of 1942.

Personnel at the end of March had increased to 50% greater than a year earlier, according to report, and proportion of women employes had risen from 5½% to 17½%, with more being hired daily. Further expansion of plant facilities has been necessary to handle war demands.

Timm-Larson Aircraft Firm Founded on Coast

Formation of the Timm-Larson Aircraft Co., Fresno, Cal., with W. D. "Wally" Timm as production manager and partner, and Norman Larson as business manager and partner, has been announced.

It is understood this firm is at present engaged on a Government contract, rebuilding, reconditioning and overhauling military aircraft. Besides Timm and Larson, management personnel is listed as: W. Frank Kelsey, assistant production manager; Dave Apple, production control and planning; John Livingston, chief inspector and Jack Howker, office manager.

Tomorrow's air battles are already partly won...

When men set down a formula like that shown below only a few people know what they're driving at. Yet the outcome of future offensives may hang on the answers in their mathematics. For they are starting the design of a new U. S. warplane.

How big a bomb-load and how many cannon will it carry? How fast and far will it cruise? How'll it answer the controls at 10,000 feet—at 20,000 or higher?

Figuring it out is a first step in the aerodynamicist's and designer's job.

Once figure work is well along, the plane designer and his group start building scale models. They test each in the wind tunnel—over and over in many forms. More. A full-size wooden "mock-up" is created, with every detail as it should be. In this master model, the sweep of gun turrets, the pilot's range of vision and a thousand other details are checked.

Experiments and sketches keep changing till the new plane looks certain to outperform any of its type in the world.

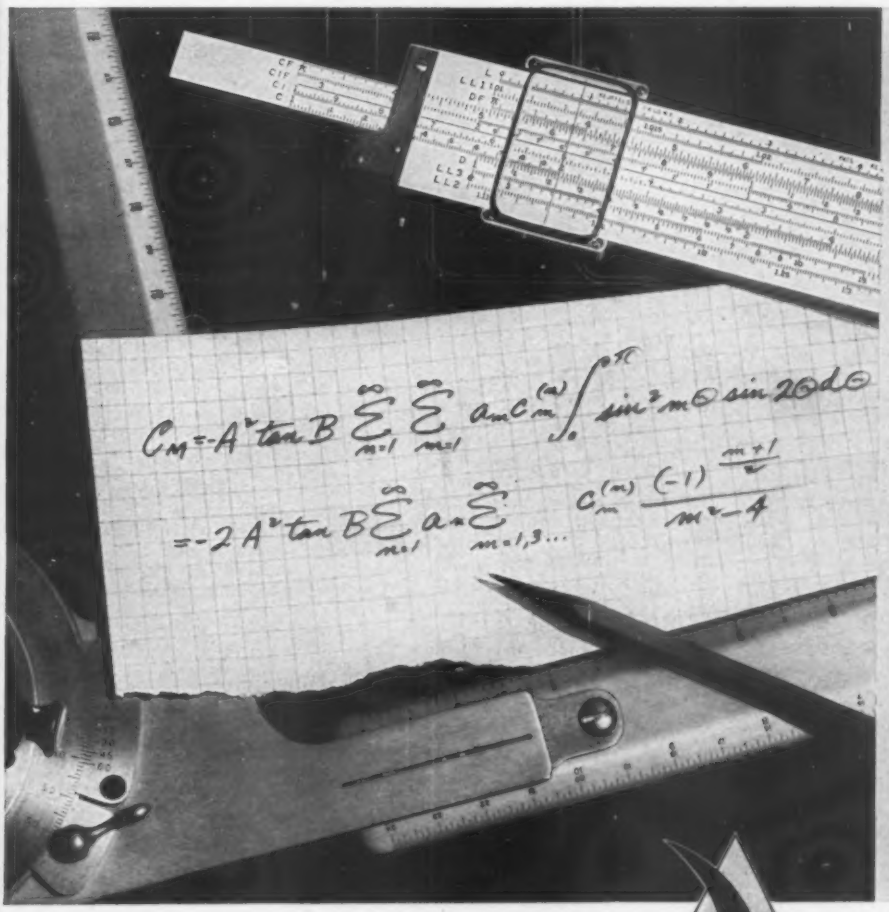
Only then is the design group ready to build the first "experimental" plane. And they build two or more of every part.

One set of parts is assembled as a complete plane for test pilots to fly. The duplicate parts are "for static" and every such part is loaded to its breaking point so that designers can be sure it will stand up under emergency stresses, strains and overloads. (You've noticed how frequently U. S. built warplanes keep right on flying after they are shot almost into pieces.)

Under the goad of war this figuring, wind tunnel work, parts fabrication, mock-up building, assembly of experimental planes and test flying goes on without letup. Plane design groups in plants all over America are at it—each working hand-in-glove with the Army and Navy.

And today in the skies you can see some of the results. Great bombers now still further improved. Radical-design fighters and pursuits. New dive bombers and torpedo carriers and transports.

You've seen some. You will see more and more. Take pride in all these sleeker, stronger U. S. warbirds—they'll be *your own*—for each is hatching from the War Bonds that you and others like you are buying every month.



A Northrop "first" in 1930

The "ALPHA" ushered in the era of the modern low wing all-metal monoplane

Designed by the Northrop group and built in 1930, the Northrop "Alpha" flew the cross country mails for Transcontinental & Western Air between Burbank and Newark in 19 hours. Flew over 5,400,000 miles on this route alone.

The Northrop "Alpha" was the first all-metal, stressed-skin monoplane to embody the modern multicellular wing structure now standard in many metal planes.

The clean lines of the "Alpha"—in advance of her time—the high performance and safety of this sturdy all-metal airplane are characteristic of sound Northrop group designing.

NORTHROP AIRCRAFT, Inc.

NORTHROP FIELD, HAWTHORNE, CALIFORNIA
MEMBER AIRCRAFT WAR PRODUCTION COUNCIL, INC.

DOWN THE Manufacturing LINE

West Coast aircraft manufacturers have become style conscious in a big way—the styles involved having to do with women's clothes. . . . The largest "factory fashion" campaign ever attempted started recently in Southern California, aimed directly at the quarter million women employed in the aircraft industry, of which number 130,000 are in the airframe plants. . . . Newspaper advertising, fashion columnists and department stores are carrying out a coordinated campaign for tailored slack suits of dark blue Cellanese as the uniform for the Women's Production Army, with the two-fold purpose of morale building among women workers and assuring safe factory clothes. . . . Boeing Aircraft Co. at Seattle went further and called in Muriel King from her internationally known fashion salon in New York and her Hollywood picture costuming assignments to design a series of women's work clothes styles known as "Flying Fortress Fashions." . . . Identifying divisional insignia are included on the costumes and chevrons on sleeves indicate the length of time the women have been in war work. . . . The idea seems to be paying dividends.

Boeing employes model their new work clothes, described as "practical and yet glamorous" by Miss Muriel King, their designer, who is shown at right.

●

"The Beech Log," employe publication of Beech Aircraft Corp., Wichita, Kan., has a novel A. W. O. L. Dog House for its anti-absenteeism campaign . . . Into this dog house, which has a standard place in the magazine, go each week the pictures of the supervisors of the two Beech departments which have the worst absentee record for the week . . . Supervisors and foremen try hard to stay out of the dog house.

●

To its extra-curricular ventures, Douglas Aircraft Co. has added a newspaper, the Douglas Airview News, to function as "a rapid means of acquainting workers with the latest government directives, new safety regulations, departmental changes, general shop intelligence and other official matters." . . . Nat Ferber, author and one-time roving European correspondent for New York papers, is editor of *Airview News* at the parent plant at Santa Monica while similar papers will be published at six other plants. . . . Douglas has also set up rental bureau offices at Santa Monica to help its employes find places to live. . . . Classified and indexed listings of all available housing are supplemented by a group of professional house-hunters, by door-to-door canvassers and survey experts.

●

Bugles have replaced whistles and the day starts with a flag salute at the Marmon-Herrington Co. plant in Indianapolis, Ind., where military ritual now adds to the theme of a sign over the entrance gate which reads: "Through these gates march the soldiers of production." . . . Two buglers sound assembly, mess call and recall as shifts begin and end, and at lunch periods. . . . Plant thoroughfares bear such names as "MacArthur Drive," "Casablanca Plaza" and "Alcan Highway." . . . The whole scheme was worked out by the labor-management committee.

●

When Globe Aircraft Corp.'s Fort Worth, Tex., plant began making advanced trainers with 11 types of wood predominating in their construction, President John Kennedy found that the ancient art of woodworking had long ago fallen upon evil days . . . Sons of cabinet makers had forsaken the trade for more promising fields and when a desperate search turned up only a few skilled woodworkers, he had them train scores of others . . . Thus aviation contributes to the renascence of an ancient art.

●

Boeing Airplane Co. struck a popular note with employes when it arranged, with War Dept. approval, a Sunday tour through its Wichita, Kan., plant for the spouses of all employes. . . . Consolidated Vultee Aircraft Corp. made the largest award yet recorded—$1,500—to three San Diego, Cal., workers who devised a new type of fabric to attach sound-proofing panels in Liberator B-24's. . . . McDonnell Aircraft Corp. is making steady strides at its St. Louis plant in the adaptation of laminated paper plastic to many aircraft uses, and now calls this product "structomold." . . . Bendix Aviation Corp. employs "set-up girls" at its New York plant—girls who can operate any or all machines in a department—to relieve women employes temporarily when they wish to leave their machines at other than rest period time. . . . Employes report this plan has had a material effect in reducing absenteeism. C. G.

Gorrell

(Continued from page 66)

On the subject of government-owned airlines, Col. Gorrell said:

"There have repeatedly appeared during recent months newspaper accounts indicating that projects for various degrees of government ownership, management or operation of American aviation after the war are under consideration. These projects apparently encompass everything from such extreme proposals as an intergovernmental world corporation to less fantastic suggestions for what Mr. Lissitzyn terms "statization." To what extent such proposals have been receiving consideration by the Interdepartmental Committee on International Aviation one cannot tell. That Committee has only recently emerged from behind closed doors and then only to the extent of having the Civil Aeronautics Board circulate a list of questions with the statement that anyone interested should send his comments to the Board. Certain of those questions do, however, reflect apparent suggestions for internationally owned and controlled government corporations and for other types of governmental ownership or management in the case of foreign air commerce.

"There is no reason for not giving consideration to all possible means for aviation's best development, including government ownership, management or operation in the field not only of foreign commerce but also of domestic commerce. Aviation is too important to the future welfare of America to foreclose from serious consideration any possible means for its best development and unquestionably there is a certain apparent simplicity about governmental ownership, or management, or operation, which must have a strong appeal, especially to those who have only recently become acquainted with many serious and difficult problems which the development of aviation presents.

"But let us hope that responsible persons both in and out of government will not fall victim to the human tendency to which I have referred and will not too readily assume that because the problems of aviation may seem to them new and in many respects unique, it is necessary to seize upon some entirely new and untried instrument for aviation's best development. And by all means let us hope that those who will be responsible for many of the fundamental decisions which may irrevocably affect aviation's future will not overlook the experience gained in the 25 years since the Post Office Dept. first speeded the mail aloft from Washington's Polo Field and will not forget that a great fund of knowledge is stored in the minds of men and of companies, long active in every field of aviation, who have met and surmounted difficulties in the past far more severe than problems yet to be encountered . . .

"What has been accomplished in the past is the solution only of certain basic technical problems and the development of certain basic techniques of operation. There lies ahead not only further technological improvement but also the great task of commercial development, the task in which American private initiative is peculiarly fitted to excel."

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Get the job done quicker—*and better* with the new "Sterling 1000"! Powerful . . . rapid cutting—yet, because of skillfully engineered counter-balanced mechanism it operates *without a trace of vibration!* So smoothly does the "Sterling 1000" handle—that women operators prefer to work with this new sander. Elimination of operator's jingle-jangle nerves alone means higher quality work! And this sander is *tough*—sturdily built to serve you dependably . . . even under heavy production pressure.

DESIGNED ON NEW SANDING ACTION PRINCIPLE! Orbital, circular, thousands of abrasive grains cut furrows which cross and recross each other. With this action, the "Sterling 1000" cuts faster—produces the smoothest surface you've ever known on wood, metal, plastic or composition. Ideal for many rubbing and polishing operations.

Write today for your copy of the New "Sterling 1000" folder, which describes its *21 important features* in every detail.

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New Training Plane Announced by Piper

A new training plane, adaptable either for Army-Navy or WTS secondary work, is announced by Piper Aircraft Corp., Lock Haven, Pa. The plane is described by the manufacturer as capable of meeting the early requirements of primary flight training, requirements of the transitional period where speed and a higher degree of maneuverability are desired, and cross-country demands. Dave Long, 27 years old, is the designer.

A feature of the plane is the inclusion of an odometer on the front tachometer. Based on the average rpm through all operations, this instrument clocks the operating time, and may be used to account for periodic inspections as well as in checking oil and fuel consumption.

One of many operator-dictated innovations included is the identical location of dual controls.

Specifications and performance data are as follows:

Power: Franklin 6 AC 298, 130 hp horizontally opposed.
Maximum speed: over 150 mph.
Cruising speed: over 135 mph.
Landing speed: under 50 mph.
Rate of climb: 750-1,000 ft. per minute, depending upon propeller used.
Cruising range: 700 miles.
Empty weight: 1,325 lbs.
Useful load: 675 lbs.
Gross weight: 2,000 lbs.
Wing span: 34 ft.
Length overall: 22 ft., 10 in.
Height overall: 6 ft., 6 in.
Wing area: 164 sq. ft.
Wing loading: 12.2 lbs./sq. ft.
Power loading: 15.4 lbs. hp.
Fuel capacity: 40 gal.

Foley

(Continued from page 62)

spots his key men as foremen and he may know fewer than 10% of the remaining 450. The new men are flowing in and, if operating under the same "family rules," the shop structure becomes gangly, relationships remote. Personalities, favoritisms and the like all become factors in our shop organization. Unless standards, procedures, requirements, personal interest in personnel on the part of management are all adequate, serious repercussions may result.

If the foreman has no proper procedure to follow in the disposition of such matters as pay complaints, inter-shop responsibilities, allocation of work load, etc. and the maintenance superintendent is too remote, disinterested or busy, the mechanic finds himself "isolated." In such a situation the natural (if expensive to the operator) reaction of the mechanic may be to seek a more orderly functioning organization.

Similarly, our office staff of 30 has established a word-of-mouth tradition by which all correspondence is written, copies assigned and similar detail action determined. If big business is upon us before we can formulate the necessary specific *published* rules for a general expansion, the process of catching up becomes a marginally practical chase.

M.A.P.

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M. A. P. precision workmanship, backed by previous experience, represents our not unimportant contribution to the war program.

And when peace comes, too, **M. A. P.** shall still be importantly in the production of Aircraft parts and accessories. Engineering toward that end is going on NOW.

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MIDWEST AIRCRAFT PRODUCTS

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DAYTON, OHIO

Birthplace of the Airplane

LET'S ALL BUY MORE WAR BONDS & STAMPS!

SEC Lists Salaries

Securities and Exchange Commission recently announced salaries of aviation firm executives as revealed in 1942 annual reports, including the following: Eddie Rickenbacker, as president and director of Eastern Airlines, Inc., received $35,519.

Salaries of Lockheed Aircraft Corp., Burbank, Cal., included: Robert E. Gross, president, $125,000; C. A. Baker, Jr., vice president and treasurer, $90,000; Cyril Chappelet, Hall L. Hibbard, Carl B. Squier and R. A. Von Hake, vice presidents, $65,000 each; Joseph F. Brady, tax counsel, $59,250; Vance Breese, research engineer, $60,815.

Thomas M. Girdler, chairman of Republic Steel Corp., received $275,000. Of this salary, $82,500 was from Consolidated Aircraft Corp., and $55,000 from Vultee Aircraft, Inc., on whose boards he served as chairman.

Production Increases

A production rate of about $16,000,000 a year has been attained at the Republic Aircraft Products Division of Aviation Corp.

Leading Aviation Stocks

New York Stock Exchange

	Week Ending May 15				Week Ending May 22			
	Sales	High	Low	Net Change	Sales	High	Low	Net Change
American Airlines	3,300	70¾	67½	.....	4,500	71	69⅜	+ ⅛
Aviation Corp.	71,600	6¼	5½	— ⅝	21,800	5¾	5½	— ⅛
Bell Aircraft	5,400	18⅜	16⅝	—1	3,700	17⅜	16⅞	+ ⅛
Bendix Aviation	6,000	39⅜	37⅛	—1¾	9,400	39⅜	37¼	+ ⅛
Boeing Airplane	10,400	19⅜	17⅝	—1¼	6,900	18¾	17¾	+ ⅛
Consolidated Vultee	14,100	19	16¼	—1¼	6,400	18	17⅜	+ ⅛
Consolidated Vultee pfd.	4,100	26	25⅛	.....	4,500	25⅜	25	+7/16
Curtiss-Wright	36,900	9⅛	8½	— ⅜	24,700	8⅞	8½	— ⅛
Curtiss-Wright A	3,500	23⅝	22⅝	— ½	2,800	23⅛	22⅝	— ⅛
Douglas Aircraft	2,500	71¾	66½	—3	2,800	70	67¼	+1⅜
Eastern Air Lines	3,900	40¼	37⅞	—1⅝	8,500	39⅞	37¾	+ ⅛
Ex-Cell-O	5,100	27⅞	25⅝	—1	2,300	27⅛	26¼	+ ⅜
Grumman Aircraft Engineering	6,000	16⅜	14½	—1⅛	2,400	16	15	+1
Hayes Industries	1,200	9⅛	8½	— ⅜	300	8½	8⅜	.....
Lockheed Aircraft	14,200	22¾	20⅛	—1⅛	9,300	22⅜	20⅞	+ ⅜
National Aviation	4,900	13⅜	11⅛	—1⅞	2,300	12¼	11⅞	+ ⅛
North American Aviation	10,500	13⅜	12½	— ⅞	8,300	13	12⅜	+ ⅜
Pan American Airways	16,700	33¼	30¾	— ¾	17,600	33¼	31⅝	.....
Sperry Corp.	10,900	32⅛	29¼	— ¾	5,400	31⅛	30	.....
Thompson Products	1,900	31	29⅞	—1	900	31	30	+ ⅛
Transcontinental & Western Air	8,700	23⅛	21⅜	+ ⅝	11,000	23⅞	21¼	— ⅛
United Air Lines	22,400	27½	25½	— ⅜	30,700	28¾	26⅞	+ ⅝
United Aircraft	14,800	39	36½	— ⅛	13,500	38½	37¼	— ⅛
United Aircraft pfd.	500	110¾	108	— ¼	1,900	111	109	+1⅛
Wright Aero	2,000	103	103	—1½	2,000	102	101	—2

New York Curb Exchange

	Week Ending May 15				Week Ending May 22			
	Sales	High	Low	Net Change	Sales	High	Low	Net Change
Aero Supply B	1,300	5¼	5⅛	+ ⅛	2,200	5⅛	5	— ⅛
Air Associates	1,400	8	8	.....	100	7½	7½	— ⅛
Aircraft Accessories	9,900	4⅛	3½	— ⅛	13,300	4⅛	3¾	+ ⅛
Aro Equipment	1,400	16¾	16½	+ ¼	6,200	19¼	16⅛	+3⅛
Beech Aircraft	10,500	14¼	12¾	— ¾	6,900	14	12⅝	+1
Bellanca Aircraft	2,900	4⅛	3¾	— ¼	1,400	4	3¾	+ ⅛
Breeze Corp.	1,900	10⅞	10⅛	.....	8,900	12¼	10½	+1⅜
Brewster Aero	4,400	6	5½	.....	2,700	5⅞	5⅝	+ ⅛
Cessna Aircraft	12,300	9⅞	9	— ⅜	11,800	10½	9	+1⅛
Colonial Airlines	2,600	7	6	— ⅝	2,700	7⅛	6¼	+1
Fairchild Aviation	1,500	9¾	9⅜	— ¼	1,900	9¾	9¼	— ⅛
Fairchild Eng. & Airplane	5,300	2⅝	2⅜	— ⅛	2,900	2½	2¼	— ⅛
Irving Air Chute	800	10⅜	10⅛	.....	100	10⅛	10⅛	— ⅛
Pennsylvania-Central Air	7,700	16¼	14⅝	— ½	5,300	15¾	14½	— ⅜
Republic Aviation	17,700	5⅜	4⅝	— ⅛	3,600	5	4⅝	— ⅛
Ryan Aero	1,100	4⅝	4⅜	— ⅛	300	4½	4¼	— ⅛
Solar Aircraft	3,900	3¾	3⅜	+ ⅛	1,700	3⅝	3½	.....
United Aircraft Pr.	17,400	14½	12⅝	— ½	3,200	13¾	13	+ ⅝
Waco Aircraft	200	4½	4⅜	— ⅛	300	4½	4½	+ ⅛
Western Air Lines	6,000	10	8⅞	+ ⅜	5,300	10½	9½	+ ⅛

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Boeing Production at New Industry Record

The Boeing Aircraft Company set a new record in April for production of its Flying Fortress, P. G. Johnson, Boeing president, announced recently.

Not only does April constitute a new record in total number of planes built but also in the number of pounds of aircraft planes turned out per man-hour and per square foot of factory space, he said.

In the combined categories of pounds per man-hour and pounds per square foot, Boeing production stands highest among all the companies engaged in aircraft plane manufacturing, Johnson asserted.

Fortress production in April continued to rise steadily over previous months in accordance with the acceleration curve assigned by the government, which calls for an increase of a specific number of planes each month. Johnson, emphasized, however, that further acceleration beyond the present level will necessitate addifional manpower.

NIGHT FIGHTER . . .

WONDERFUL organisation by brains behind the scene, initiative, skill and courage of gallant men and—this must not be overlooked—superlative performance by aircraft, all combine to establish the R.A.F. supremacy in the air night and day. There must be no " margin for error " in the performance of high powered aero-engines ! They must give immediate response to the pilot's demands, even under the terrific buffeting of battle conditions.

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Financial

CLEVELAND PNEUMATIC TOOL Co., Cleveland, O., has announced completion of arrangements for a $24,000,000 revolving credit, to be shared jointly with its subsidiary, Cleveland Pneumatic Aerol, Inc. A Regulation V loan, this sum will be handled by a group of 12 banks, headed by Central National of Cleveland, which will furnish 12% of the total and act as agent and clearing bank.

HAYES MANUFACTURING Corp., Grand Rapids, Mich., for the quarter ended Mar. 31, 1943, had net profit of $20,160, equal to two cents each on 875,000 shares, common, according to report. This compares with $73,528, or eight cents a share, for the equivalent period of 1942.

UNITED AIRCRAFT Corp., East Hartford, Conn., is reported to have declared dividend of $1.50 a share, common, on May 10. No date for payment was stated.

THOMPSON AIRCRAFT PRODUCTS Co., Euclid, O., for 1943's first quarter reported net earnings of $289,137, after estimated provision of $1,394,700 for taxes and current contingencies. Thompson Products, Inc., of Cleveland, O., associated company, and subsidiaries, had earnings of $448,952 in the same period, equal to $1.41 a share, common. Total sales for the combined companies amounted to $30,112,251, compared with $13,913,150 in the like period of 1942.

FLEET AIRCRAFT, Ltd., Fort Erie, Ont., has announced a 25c a share dividend, payable June 15 to holders of record May 15, which is the initial payment on this stock.

BRIGGS MANUFACTURING Co., Detroit, Mich., had net profit for this year's first quarter of $1,183,724, equal, after taxes, to 61c a share, opposed to $921,824, or 47c, in the similar period of 1942, as reported.

DOUGLAS AIRCRAFT Co., Inc., Santa Monica, Cal., has announced the signing of a two-year agreement with 17 of the country's banks for an unsecured credit of $40,000,000. The interest rate is 1½ per cent, with a ¼ of one per cent commitment charge. Seven New York banks will provide 2/3 of the credit, and financial institutions in other parts of the country will make the balance available.

GENERAL MOTORS Corp., Detroit, Mich., reports earnings for quarter ended March 31 were $33,074,031, equal to 71c a share after allowing $7,655,259 for post war rehabilitation and $28,404,000 for adjustments in connection with 991, or 48c. Dollar value of war material delivered in first quarter was $765,525,835, compared with $753,711,139 in the last quarter of 1942 and $245,057,842 in the first quarter of 1942. Latter figure is after adjustment reflecting retroactive price reductions. War production deliveries were reported as now at an annual rate of more than $3,000,000,000. Hourly-rate employes worked an average of 45.7 hours per week, compared with 42.9 in 1942 first quarter. Average earnings per week were $54.76, compared with $48.24. Directors on May 3 declared dividend of 50c a share on outstanding common stock, payable June 12 to stockholders of record May 13. Regular quarterly dividend of $1.25 per share was declared on $5 preferred stock, payable Aug. 2 to stockholders of record July 6.

HARLOW AIRCRAFT Co., Alhambra, Cal., for quarter to Feb. 28, reports net loss of $6,756, compared with $6,601, or $1 each on 541,436 shares earned in the February quarter a year ago; for year to November 30 net loss of $30,549, compared with one of $2,289 in preceding fiscal year.

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